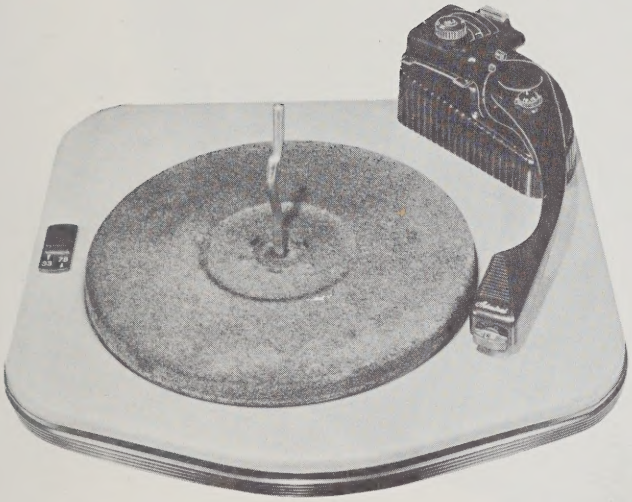
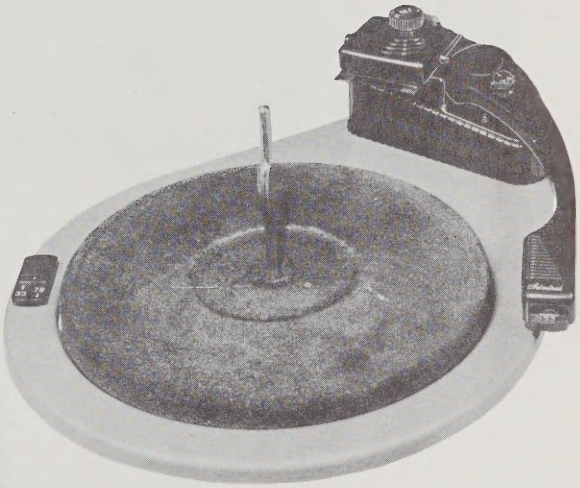
# CONTENTS


| TRADE NAME | MODEL | SET AND FOLDER NO. |
|---|---|---|
| Admiral | RC210, RC211, RC212, (Record Changer) | 72-1 |
| Aircastle | 5036 | 72-2 |
| Airline | 94GSE-2735A, 94GSE-2736A | 72-3 |
| Airline | 94WG-3006A, 94WG-3008A, 94WG-3009A, (Tele. Rec.) | 72-4 |
| Brook | 10C3 | 72-5 |
| Collins | 45-D | 72-6 |
| David Bogen | PX15 | 72-7 |
| Dumont | RA105 (Tele. Rec.) | 72-8 |
| Emerson | 586 (Ch. 120023B, 120083B) | 72-9 |
| RCA Victor | RP168 (Record Changer) | 72-10 |
| Silvertone | 9005, 9006 (Ch. 132.858) | 72-11 |
| Stromberg-Carlson | TS-15, TS-16, TS-125 Series (Tele. Rec.) | 72-12 |
| Trav-ler | A (Record Changer) | 72-13 |

ADMIRAL MODELS
RC210, RC211, RC212



MODEL RC210
FIGURE 1



MODEL RC212
FIGURE 2

ADMIRAL MODELS
RC210, RC211, RC212



## GENERAL INFORMATION

The Admiral Models RC210, RC211, RC212 are two-speed record changers. They are designed to play, automatically, a series of ten 7-inch, twelve 10-inch, or ten 12-inch records of either the 78 RPM or the 33 RPM type.

The only difference in these models is the shape of the pan.

**Manufactured by:**

**ADMIRAL CORPORATION, 3800 CORTLAND STREET, CHICAGO, ILLINOIS**

*This material compiled and published by*

**HOWARD W. SAMS & CO., INC., INDIANAPOLIS 1, INDIANA**

COPYRIGHT 1949 • ALL RIGHTS RESERVED

DATE 10/49 SET #72 FOLDER #1

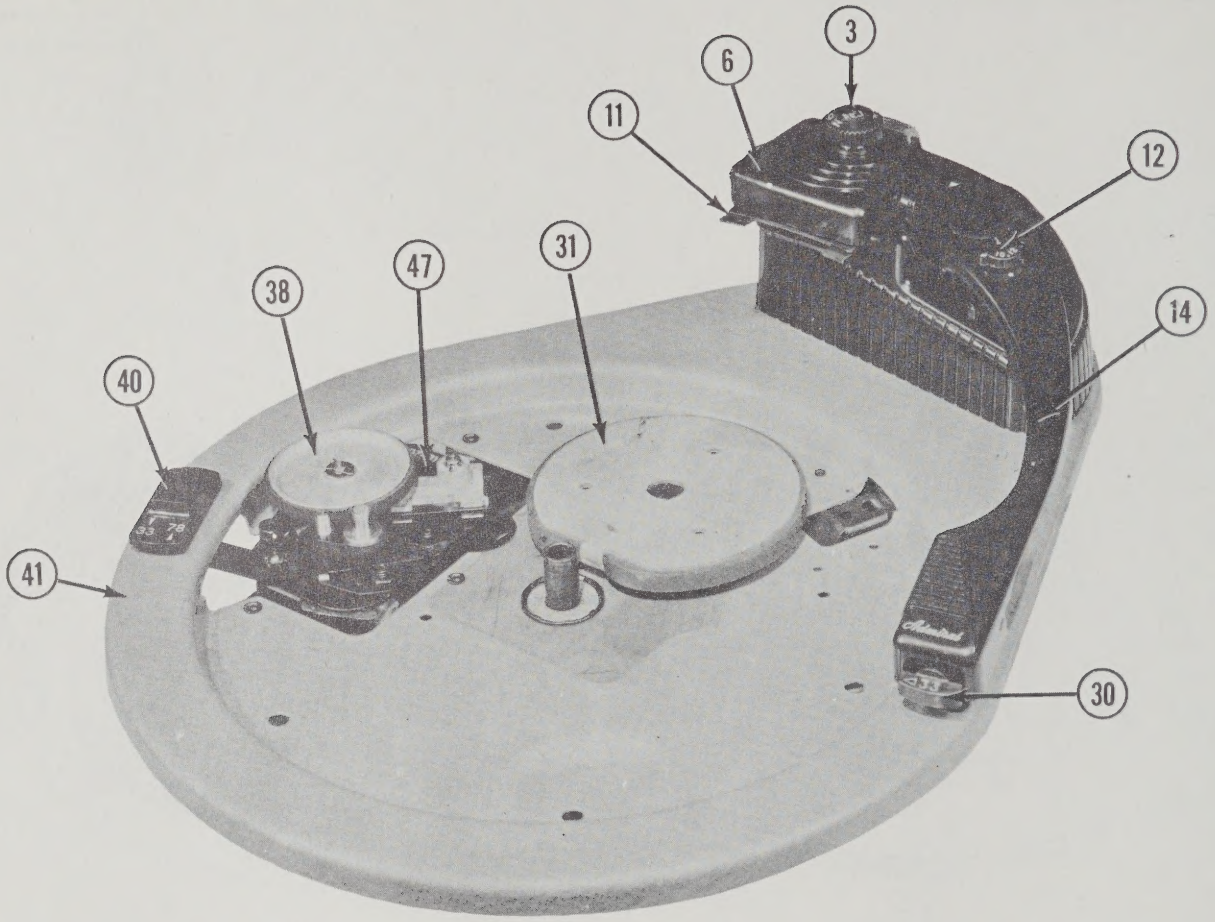



FIGURE 3

# OPERATING INSTRUCTIONS

### Setting for Size of Records

*1. Selecting Centerpost (1 and 2) Exploded View:*

This changer is designed to use two different centerposts. Centerpost (1) *exploded view* is used for automatically playing 7-inch records. Centerpost (2) is used for playing 10-inch and 12-inch records.

To change the centerpost, it is only necessary to lift the centerpost from its socket. Place one hand on the turntable while pulling out the centerpost with the other hand. Be sure the centerpost is pushed all the way down.

*2. Setting Head Assembly (6) Exploded View:*

To play 7-inch and 10-inch records, rotate the head assembly (6) in either direction so that the embossed design is toward the centerpost. For 12-inch records, rotate the head assembly so the embossed design is away from the centerpost.

*3. Setting Record Size Selector Knob (12):*

The selector knob (12) must be turned so that the Figure "7" on the knob is adjacent to the dot on the tone arm (14). This may be done by turning the knob counterclockwise. To play 10-inch and 12-inch records, turn the knob (12) clockwise until "10-12" on the knob lines up with the dot on the tone arm.

### Setting Needle Selector and Speed Change Knob

For playing 33 RPM records, turn the cartridge (39) so that the "33" on the knob faces up. Also, in playing 78 RPM records, the "78" should face up. The small arrow next to the "33" and "78" indicates the direction the knob should be turned.

Move the speed control knob (40) to "33" position for playing 33 RPM records, and to "78" position for playing 78 RPM records. The direction to move the speed change knob is indicated by arrows stamped on the knob.

### Loading and Starting the Changer

In loading the changer, all the records must be of the same size (all 7-inch, all 10-inch, or all 12-inch) for each loading.

After setting the head assembly for the correct record size, raise clip (8) so that it is away from the centerpost. Place the records on the centerpost. The records are supported by the shoulder of the centerpost and

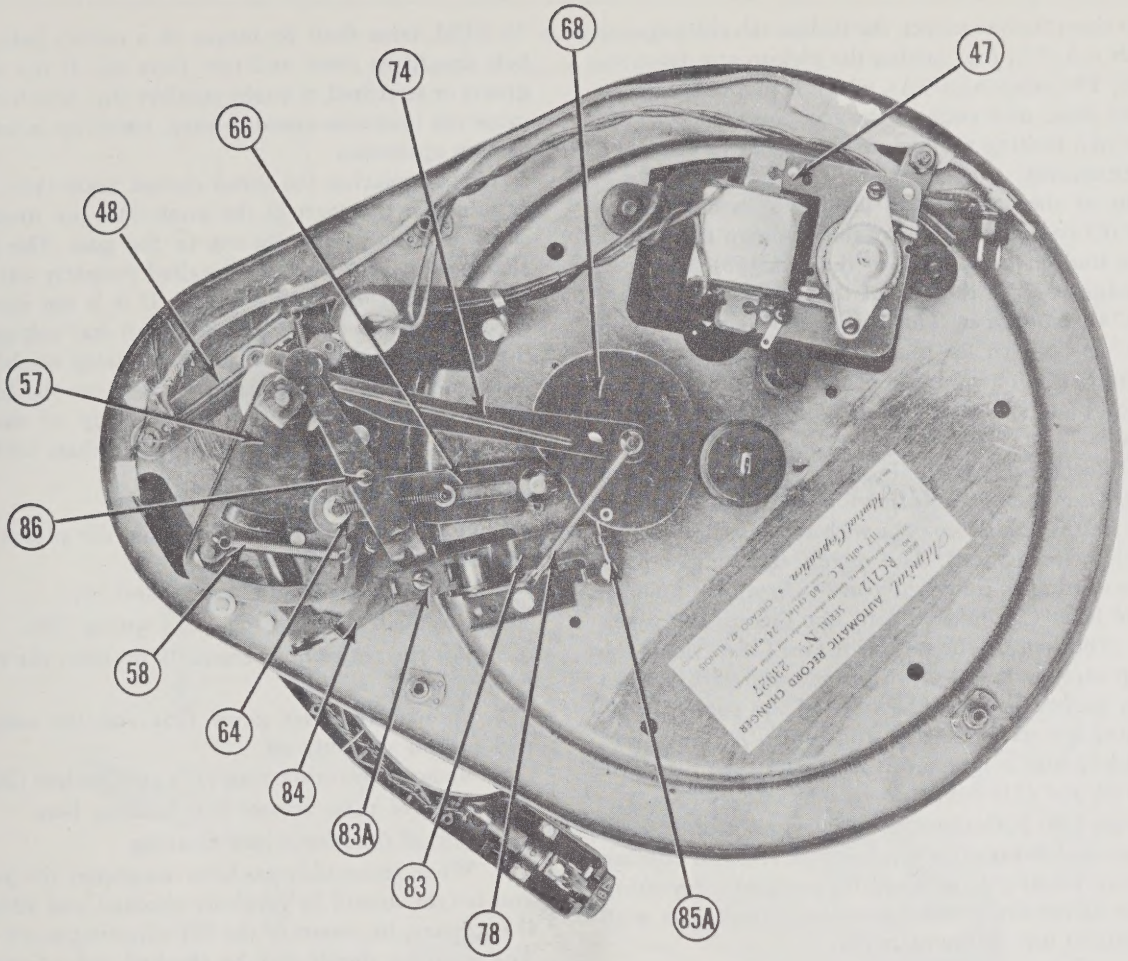



FIGURE 4

the record support shelf (13).

Place the record clip (8) so that it rests on the top record.

Turn the "On-Off" knob (3) to the "On" position; then press down on this knob momentarily. The changer will now play the entire stack of records.

To reject a record any time while playing, press down on "On-Off-Reject" button (3).

### *Stopping and Unloading*

The record changer cannot be turned off, during the change cycle, by means of the "On-Off-Rej." knob; therefore, after the last record, allow the mechanism to go through its change cycle and start playing again. Then, turn the knob (3) to "Off" position. Move the arm out clear of the records. Raise the record clip (8) and remove the records.

## CHANGE CYCLE

### *The Changing Mechanism May Be Set in Motion by One of Two Means*

1. When the "On-Off-Reject" knob (3) is pressed down, it causes the push-off cam and shaft (13) to move the reject link (85) down, which, as a result, pivots the trip lever (83) so that the trip stop wire (85A), Figure (4), is no longer engaged with the stud on the control cam (68).

This allows the cycle spring (78) to pull the control cam clockwise. Since the control cam and the drive wheel (31) are on the same shaft, the drive wheel is brought into engagement with the knurled hub of the turntable. This starts the changing mechanism.

2. As the pickup arm moves into the eccentric groove of the record, the oscillation of the pickup arm causes the pawl (A) of the arm control lever (54) to engage the trip serrations (84). This engagement straightens the pawl, and, as a result, moves the trip lever (83) far enough so that the trip stop wire (85A) is no longer engaged with the cam stop stud. The drive wheel (31) is now pulled into engagement with the knurled hub of the turntable which drives the changing mechanism.

The drive wheel (31) and the control cam (68) rotate as a unit since they are on the same shaft. As soon as the changer has been tripped, the trip cocking spring (80) causes the trip lever (83) to return the trip stop wire (85A) to its normal position.

Roller (69), riding around the cam, moves the pivot link (66), which, in turn, rotates the control plate (57).

As the control plate moves, the incline tab rides against the lift rod (21), thus raising the pickup arm from the record. The safety arm (61), which is pivoted from the control plate, now engages the arm control lever (54), roller (A), causing the pickup arm to move out clearing the records.

Also, as the arm control lever (54) is moved out, roller (C) contacts and moves the set-down arm (48A).

The stud on the bottom of the cam (68), Figure 4, now engages with the end of the slot in the push-off link (74), moving it. This action moves the push-off arm (74A), which, in turn, rotates the push-off cam and shaft (13). The rotation of the cam (10) moves the push-off plate (11) forward, dropping a record to the turntable.

As the control cam continues its rotation, the pivot link (66) moves back following the cam, since the roller (69) is held in contact with the cam by the control plate spring (64). This pivots the control plate (57) inward. The set-down arm (48A) moves the arm control lever (54) and, in turn, the pickup in for set-down. The step on the set-down arm (48A) holds the pickup arm at the set-down point until the set-down arm is pushed back by the edge of the control plate engaging the set-down arm stud (48B). At this point, the pickup arm is free and is lowered to the turntable as the lift rod (21) moves down the incline tab.

Spring (78) pulls the control cam (68) around until the cam stud engages the trip wire (85A), thus holding the drive wheel (31) in a neutral position, preventing the tire of the drive wheel from making contact with the knurled hub of the turntable.

### *Determination of the Set-Down Point*

When the record changer is set to play 10-inch records, the set-down arm (48A), through the tension of the set-down spring (50), moves the arm in toward the spindle. This lengthens the distance the arm return roller (54C) has to travel before it reaches the step on the set-down arm (54C).

For 7-inch set-down, the head assembly (6) must be set for the 10-inch set-down. The pickup arm is then pivoted in for 7-inch set-down by turning the selector knob (12).

When the changer is set for 12-inch records, the size change eccentric (87), Figure 5, moves the set-down and size change assembly (48), so that the arm return roller (54C) does not travel as great a distance along the set-down arm (48A) before it reaches the step.

### *Two-Speed Motor (47)*

The turntable speed of these Record Changers is changed mechanically. When the speed change knob (40) is moved to the "33" position, the speed change arm (42) moves. This causes the 33 RPM drive shaft to pivot and ride against the idler wheel (38). When the speed change knob is moved to the 78 RPM position, the speed change arm causes the 33 RPM drive shaft to pivot away from the idler wheel (38). When the speed change knob (40) is moved, make certain that it "clicks" or "snaps" into position.

Note that the 33 RPM drive shaft is driven by the 78 RPM drive shaft by means of a rubber belt. This belt should be clean and free from oil. If the belt is greasy or stretched, it might possibly slip, which would cause the turntable speed to vary, resulting in unsatisfactory operation.

When replacing the speed change knob (40), make certain that the shaft in the knob does not touch the sides or ends of the cut-out in the pan. The speed change arm (42) must be installed properly (its half-punches keep the proper angle). If it is not installed correctly, the speed change knob shaft may rub against the edge of the opening in the pan causing rumble and noisy pickup. Also, the clearance between the bottom of the speed change knob and the top of the pan should not be less than 1/64" or more than 3/64".

### *Removing the Plastic Base Housing*

Should it be necessary to remove the plastic base housing, proceed as follows:

1. Remove retaining rings (55 and 75).
2. Release one end of the index spring (49).
3. Lift the entire head assembly up from the top of the changer.
4. Loosen Allen set screw (25) and lift complete pickup arm assembly off.
5. Remove retaining ring (27) and washer (26).
6. Remove three screws (53) holding base.
7. Lift off the plastic base housing.
8. When reassembly has been completed, the pickup arm height should be carefully checked and adjusted, if necessary, by means of the lift adjusting screw (23). The set-down should also be checked and adjusted, if necessary, as outlined under "Adjustment of Set-Down Point."

### *Removing Turntable (32) and Bearing Assembly (35)*

To remove the turntable, it is only necessary to grasp the turntable by its edges and lift up. Before replacing the turntable, make sure that the recessed part of the drive wheel (31) is toward the centerpost. If necessary, turn drive wheel counterclockwise, about a turn, so it locks in this position. The pickup arm should be positioned away from the turntable. In replacing the turntable, force is not needed to seat it. Make certain, however, that the idler wheel of the motor has been pushed in toward the centerpost, and that the idler wheel is making contact with the inner side of the turntable flange.

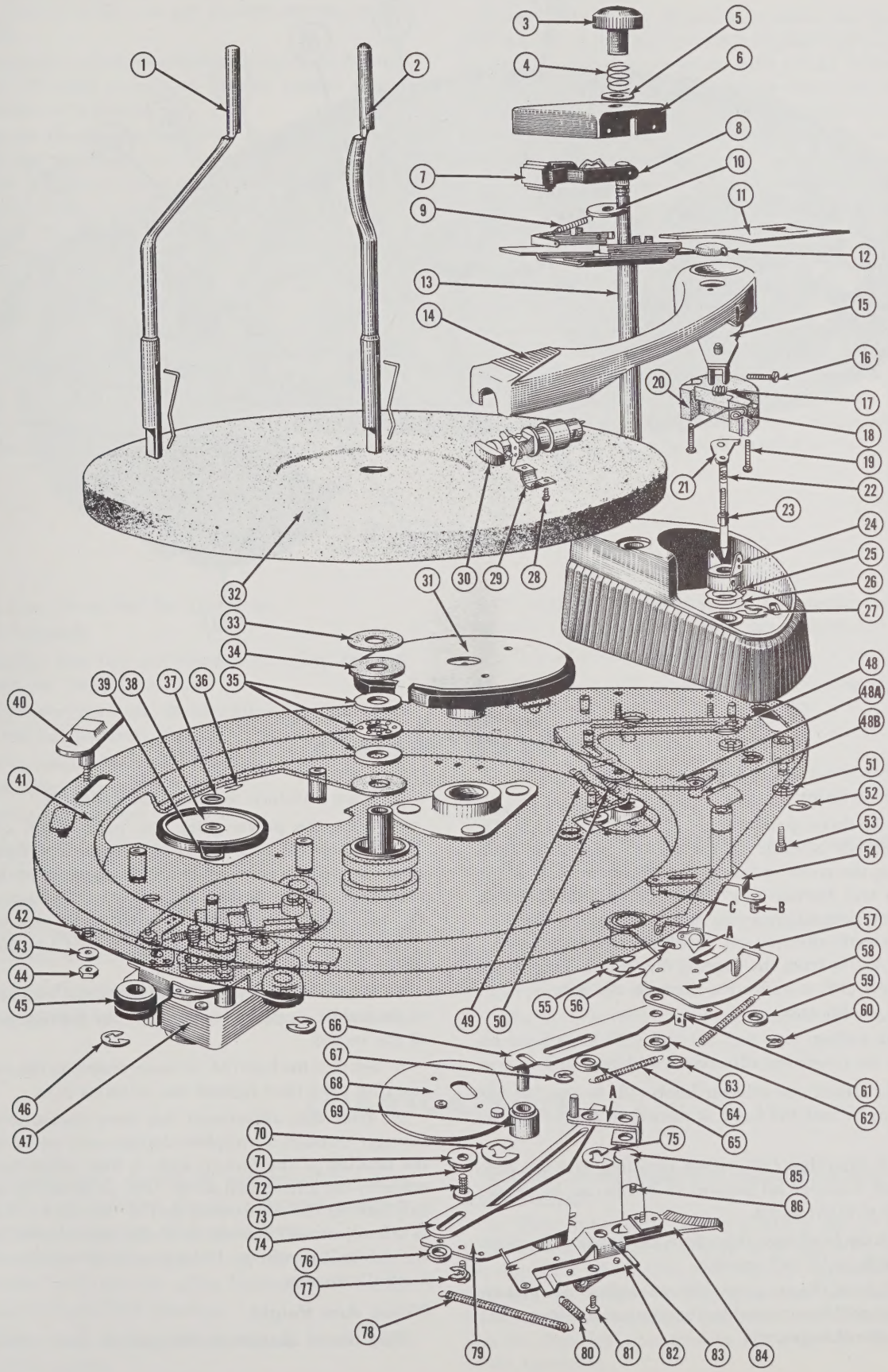
The dimensions of the two-speed motor are such that three cork washers (32 and 34) are used under the turntable hub to keep the turntable from rubbing against the idler wheel drive shafts.

In some cases, it may be found that the three cork washers, after considerable use, are compressed so the turntable will rub. To build the stack up, an additional thin cork washer should be used. This fourth cork washer may be placed at the top or bottom of the stack.

The washers (32 and 34) and thrust bearing assembly (35) are removed by sliding them off the centerpost. In replacing, have them in the order as shown in Exploded View.

A PHOTOFACT "EXPLODED" VIEW

© Howard W. Sams & Co., Inc. 1949



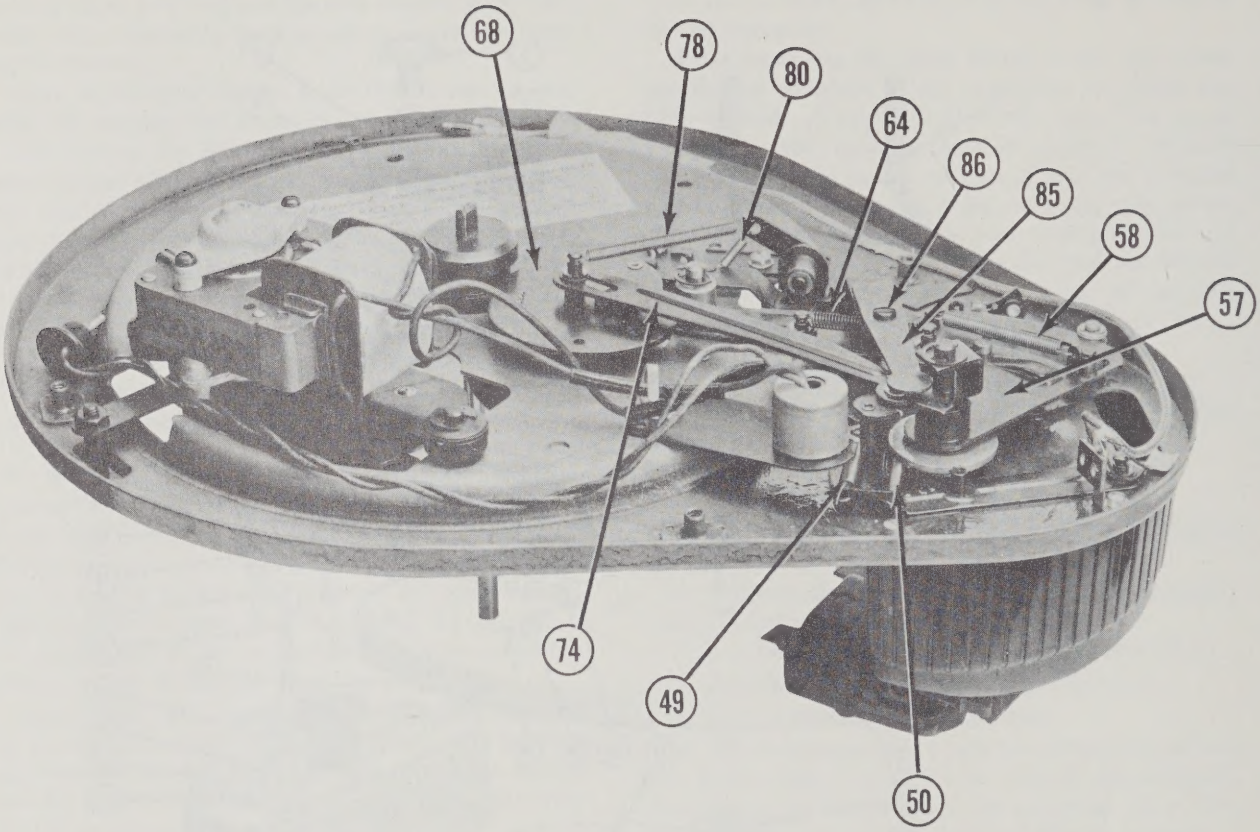



FIGURE 5

# ADJUSTMENTS

### *Set-Down Point*

The set-down point for the 7-inch, 10-inch, or 12-inch records is made by the adjustment screw (16). Turning the screw in moves the set-down point of the pickup arm farther away from the spindle. Turning the screw counterclockwise moves it closer to the spindle. Correctly adjusted, the needle should land approximately ⅛" in from the edge of the record. The adjusting screw (16) is accessible through the hole in right side of pickup arm.

If the pickup arm and lift rod (21) have been removed, the following adjustment will have to be made:

1. Set record size selector knob (12) to the "10-12" position; be sure the knob is turned all the way to its stop.

2. Set cartridge (30) either position, making sure the knob is turned all the way to its stop so the needle projects straight down.

3. Set the head assembly (6) to the position for playing 7-inch or 10-inch records.

4. Tighten the set screw (25) enough so the pickup arm (14) will be actuated by the arm control lever (54) during the change cycle.

5. Place a 10-inch record on the turntable.

6. With the power plug out, press down on the "Rej." knob (3) and rotate the turntable clockwise until the pickup arm just barely starts to lower to the turntable. At the point, the horizontal movement of the arm control lever (54) is fairly stable due to the engagement of the arm control roller (54C) in the step of the set-down arm (48A).

7. Loosen the screw (25) and move the pickup arm so the needle is approximately over the starting groove of the record.

8. See that the hub (24) is fairly seated on the retaining ring (26); then tighten the set screw (25).

9. After this adjustment has been made, put the changer through a complete change cycle and observe the landing of the pickup arm. A finer adjustment is made by the adjustment screw (16), as described in the first part of the adjustment on the "Set-Down Point." If this adjustment is made carefully, the set-down point for 7-inch records or 12-inch records will be automatically correct.

### *Pickup Arm Height*

This record changer is designed so that, when the

needle point rests ¼" above the changer pan, the pick-up arm will automatically lift high enough, during the change cycle, to clear the top record of a stack of ten 7-inch, twelve 10-inch, or ten 12-inch records on the turntable.

With proper adjustment of the pickup arm, the arm will not lift high enough to hit the bottom record of the stack to be played.

With the changer out of cycle, check the distance between the needle and the changer pan for the ¼" clearance. To obtain the correct clearance, adjust the height-adjusting screw (23). After this adjustment is made, run the changer through several change cycles to make certain the arm does not strike the bottom record of the stack to be played.

### *Reject Adjustment*

Before making any adjustment, check to see if the spring (4) exploded view is holding the push-off shaft (13) up. After making this check, the reject arm (85) may be adjusted by the screw (86). After the adjustment, there should be 1/32 of an inch space between the end of the reject arm (85) and the rivet on the push-off arm (74A).

### *Trip Adjustment*

Before making any adjustment, make sure spring (80) is holding the trip lever (83) in place and that the spring (56) is connected to the pawl (54A). Since this changer employs the oscillating type trip to begin the change cycle, it is necessary that the trip-adjusting screw (83A) be adjusted properly to insure correct operation of the changer.

If the trip-adjusting screw is turned out too far, it will take more than two back swings of the arm to trip into cycle. If the screw is almost all the way out, the changer will not trip.

To adjust the trip mechanism, turn the trip-adjusting screw (83A) in, or out, until the pawl (A) of the arm control lever (54) is horizontally even with the smooth side of the trip serrations (84).

CAUTION: If this screw is too far in, there will be excessive drag and wear on the trip serrations, pawl point, and the record eccentric groove. Consequently, this adjustment should be made carefully.

## TROUBLES

### *Pickup Arm Does Not Set Down on Record Properly*

1. Pickup arm (14) not adjusted properly. See Adjustments on "Set-Down Point."
2. Set screw (25) loose, thereby allowing hub (24) to slip on the control lever (54).
3. Arm control lever (54) binding.
4. Set-down spring (50) loose.
5. Index spring loose (49).

### *Pickup Arm Does Not Move Out at the End of the Change Cycle*

1. Safety spring (58) loose.
2. Set screw (25) loose. See Adjustment on "Set-Down Point" to readjust the arm.

### *Continuous Tripping*

1. Spring (80) missing. This allows the trip lever (83) to stay in a raised position, preventing the trip stop wire (85A) from blocking the control cam (68).
2. Trip stop wire (85A) bent upward.
3. Trip lever (83) binding on trip bracket stud.
4. Check for broken reject spring (4).
5. "On-Off-Rej." knob (3) loose.
6. Misadjustment of reject adjusting screw (86).

### *Failure to Trip*

1. Trip stop wire (85A) bent down, keeping the control cam in a blocked position.
2. Cycle spring (78) loose.
3. Trip screw (83A) out of adjustment. See "Trip Adjustment."

### *Failure to Reject*

1. Reject arm (85) out of adjustment. See "Reject."

## LUBRICATION

Factory lubrication should be sufficient for a long period of time; however, should it become necessary to lubricate the changer, do so as follows:

1. Use SAE No. 20 motor oil on the push-off shaft (30), roller (69), and the oilite bearings used in the turntable hub and base housing.
2. Use a good, light grease, sparingly, on all pivot and friction points.
3. Under normal conditions, the motor should never require oiling.
4. When lubricating, be very careful not to allow oil or grease to come in contact with the drive wheel (31) or idler wheel (38) tires and the turntable rim. Carbona, or carbon tetrachloride, may be used for cleaning these parts. Also, be careful, when using oil, that an excessive amount does not seep into the felt of the turntable.

# PARTS LIST

| Ref. No. | Part No. | DESCRIPTION |
|---|---|---|
| 1 | G400B310 | Centerpost assembly (for 7" records) |
| 2 | G400B311 | Centerpost assembly (for 10" and 12" records) |
| 3 | 403A27 | On-off reject knob |
| 4 | 405A97 | Reject spring |
| 5 | 4B1-166-47 | Washer (flat) .390 x ⅝ x 1/16 |
| 6 | 403A31 | Head cover (plastic) |
| 7 | 406A18 | Rubber bumper for record clip |
| 8 | 403A32 | Record clip (plastic) |
| 9 | 405A94 | Record clip spring |
| 10 | G400A248 | Push-off cam and shaft assembly |
| 11 | | Push-off cam (part of 13) |
| 12 | 403A37 | Record size selector knob |
| 13 | 401A166 | Push-off plate |
| 14 | 403C35 | Pickup arm |
| 15 | G400A297 | Pivot and mounting plate |
| 16 | 45-500-C2-47 | Set-down adjustment screw 4-40 x ½ BH MS |
| 17 | 405A118 | Set-down adjustment spring |
| 18 | 414A33 | Size change tension spring |
| 19 | 1A50-6-47 | Size no. 4 FH S.T. (2 req.) |
| 20 | 404A23 | Pickup arm counterweight |
| 21 | G400A238 | Lift plate and rod assembly |
| 22 | 405A120 | Lift adjusting lock spring |
| 23 | 402A156 | Lift adjusting screw |
| 24 | G400A294 | Pivot spring hub (includes 8-32 set screw) |
| 25 | 1A43-14 | Allen set screw 8-32 |
| 26 | 412A32 | Washer |
| 27 | 401A235 | Retaining ring |
| 28 | 402A139 | Plastiscrew no. 2 (2 req.) |
| 29 | 401A264 | Cartridge hold-down bracket |
| 30 | 98A54-1 | Cartridge, includes needle screws (less needles) |
| 31 | G400A252 | Drive wheel (includes tire) |
| | 406A13 | Drive wheel tire only |
| 32 | G400B167 | Turntable |
| 33 | 412A9 | Cork washer 3/64" thick (1 req.) |
| 34 | 412A1 | Cork washer 3/32" thick (2 req.) |
| 35 | 415A11 | Thrust bearing |
| 36 | 405A15 | Hairpin clip |
| 37 | 412A30 | Washer (under hairpin clip) |
| 38 | G400A279 | Idler wheel assembly |
| 39 | 98A54-4 | Fiber washer (under idler wheel) |
| 40 | 403A33 | Speed change knob |
| 41 | G400D303 | Changer pan assembly (RC212) |
| | G400D291 | Changer pan assembly (RC210) |
| | G400D306-1 | Changer pan assembly (RC211) copper |
| | G400D306-2 | Changer pan assembly (RC211) black |
| 42 | 401A242 | Speed change arm (for RC210, RC211) |
| | 401A269 | Speed change arm (for RC212 only) |
| 43 | 4B1-68-47 | Washer |
| 44 | 2A1-20-47 | Hex nut no. 10-32 |
| 45 | 406A21 | Rubber mounting grommet (3 req.) |
| 46 | 401A229 | Retaining ring |
| 47 | 407B15 | 2-speed motor |
| | 405A113 | 50-cycle conversion spring (for 78 RPM drive shaft) |
| | 405A112 | 50-cycle conversion spring (for 33 RPM drive shaft) |
| 48 | G400A222 | Set-down and size change assembly |
| 49 | 405A92 | Index spring |
| 50 | 405A93 | Set-down spring |
| 51 | 401A173 | Washer |
| 52 | 401A177 | Retaining ring |
| 53 | 402A148 | Screw, base housing mounting |
| 54 | G400A233 | Arm control lever, studs and pawl |
| 55 | 401A230 | Retaining ring |
| 56 | 405A89 | Pawl spring |
| 57 | G400A226 | Control plate, hub and stud assembly |
| 58 | 405A90 | Safety spring |
| 59 | | Flat washer |
| 60 | | "C" washer |
| 61 | 401A202 | Safety arm |
| 62 | 405A22 | Spring washer |
| 63 | 401A177 | Retaining ring |
| 64 | | Control plate spring |
| 65 | 4B1-68-47 | Washer |
| 66 | G400A224 | Pivot link and stud |
| 67 | 401A177 | Retaining ring |
| 68 | G400A227 | Control cam assembly |
| 69 | 415A9 | Powdered iron roller |
| 70 | 401A229 | Retaining ring |
| 71 | 401A145 | Control cam washer |
| 72 | 3B1-26-47 | Lockwasher no. 8 I.T. |
| 73 | 85-375-C2-39 | Control cam screw 8-32 x ⅜ BH MS |
| 74 | G400A219 | Push-off arm and link assembly |
| 75 | 401A229 | Retaining ring |
| 76 | 4B1-68-47 | Washer |
| 77 | 401A177 | Retaining ring |
| 78 | 405A87 | Cycle spring |
| 79 | 401A223 | Switch bracket |
| | 408A1 | On-off switch and cover |
| 80 | 405A88 | Trip cocking spring |
| 81 | 1A53-9-47 | Screw |
| 82 | G400A223 | Trip bracket and stud assembly |
| 83 | G400A230-1 | Reject arm support and trip lever |
| 84 | 401A271 | Trip serrations |
| 85 | 401A237 | Reject arm |
| 86 | 65-500-C2-47 | Screw, reject adjusting 6-32 x ⅜" |
| 87 | 404A17 | Size change eccentric |

AIRCASTLE
MODEL 5036

AIRCASTLE MODEL 5036

AIRCASTLE
MODEL 5036

| | |
|---|---|
| TRADE NAME | Aircastle, Model 5036 |
| SUPPLIER | Spiegel, Inc., 1061 W. 35th St., Chicago, Illinois. |
| TYPE SET | AC Operated Combination Phono-Radio, Superheterodyne Receiver. |
| TUBES (FOUR) | Types 12SA7GT Converter, 12SQ7GT DET-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| POWER SUPPLY | 110-125 Volts AC RATING .23 Amp. @ 117 Volts AC |
| TUNING RANGE—BROADCAST | 540-1620KC |

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Use isolation transformer if available. If not connect a .1 MFD. cap. in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | .1MFD | High side to rear stator of tuning gang. Low side to B-. | 455KC | Tuning gang fully open. | Across voice coil. | A1, A2 | Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001 MFD to reduce hum modulation. |
| 2. | .1MFD | " | 1620KC | " | " | A3 | Adjust for maximum output. |
| 3. | 200MMF | High to antenna hank. Low side to B-. | 1400KC | Tune for max. signal. | " | A4 | " |

**HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 10/49 SET #72 FOLDER #2

# PARTS LIST AND DESCRIPTIONS

AIRCASTLE
MODEL 5036

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: AIRCASTLE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| V1 | Converter | 12SA7GT | 12SA7GT | 8AD | |
| V2 | DET-AVC-AF | 12SQ7GT | 12SQ7GT | 8Q | |
| V3 | Power Output | 50L6GT | 50L6GT | 7AC | |
| V4 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: AIRCASTLE PART No. | REPLACEMENT DATA: AEROVOX PART No. | REPLACEMENT DATA: CORNELL-DUBILIER PART No. | REPLACEMENT DATA: ERIE PART No. | REPLACEMENT DATA: SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1A | 40 | 150 | EC-12 | PRSA150/40 | EDL4215 | | TA-240 | Filter Red |
| B | 20 | 150 | | -20 | | | | Filter Yellow |
| C2 | 10 | 500 | | 1468-00001 | 5W5Q1 | GP1K-10 | MS-41 | RF Coupling |
| C3 | 50 | 500 | MC-4 | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | Osc. Grid Cap |
| C4 | .25 | 400 | PC-4 | P438-25 | GT4P25 | | TC-2 | Bias Filter |
| C5 | .05 | 400 | PC-2 | GT4S5 | GT4S5 | | TM-15 | AVC Filter |
| C6 | 100 | 500 | MC-2 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | Diode RF Filter |
| C7 | .05 | 400 | PC-5 | P438-05 | GT4S5 | | TM-15 | Phono Isolation |
| C8 | 500 | | MC-5 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | Tone Compensation. |
| C9 | .005 | 600 | PC-10 | P688-005 | GT6L5 | GP2M-005 | TM-25 | Audio Coupling |
| C10 | 500 | | MC-5 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | AF Plate Bypass |
| C11 | .005 | 600 | PC-10 | P688-005 | GT6D5 | GP2M-005 | TM-25 | Audio Coupling |
| C12 | .01 | 400 | PC-7 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Output Plate Bypass |
| C13 | .1 | 400 | PC-9 | P488-1 | GT4P1 | | 72P2 | Line Isolation |
| C14 | .05 | 400 | PC-5 | P438-05 | GT4S5 | | TM-15 | Line Filter |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRCASTLE PART No. | REPLACEMENT DATA: IRC PART No. | REPLACEMENT DATA: CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| R1A | 1 Meg. | ½ | VC-4 | Q13-137 | AM-63-Z | Volume control. |
| B | Shaft | | Not Req. | Not Req. | KSS-3 | Attach to R1A per instructions |
| C | Switch | | Not Req. | 76-1 | SW-A | Attach to R1A per instructions |

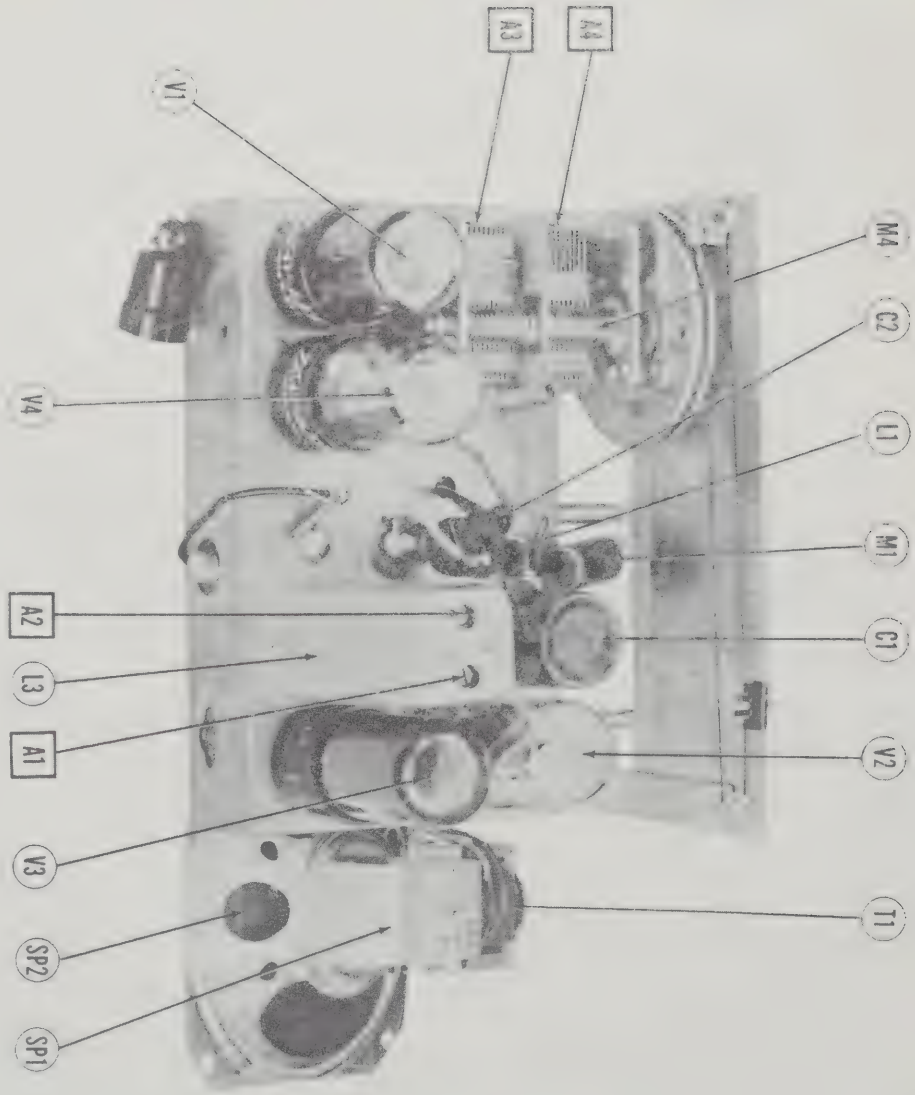
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRCASTLE PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R2 | 22KΩ | ½ | IR-9 | BTS-22K | Osc. Grid |
| R3 | 47KΩ | ½ | IR-10 | BTS-47K | Osc. Grid |
| R4 | 220KΩ | ½ | IR-20 | BTS-220K | Isolation |
| R5 | 3.3 Meg. | ½ | IR-23 | BTS-3.3 Meg | AVC Network |
| R6 | 10 Meg. | ½ | IR-3 | BTS-10 Meg | AF Grid |
| R7 | 470KΩ | ½ | IR-11 | BTS-470K | AF Plate |
| R8 | 470KΩ | ½ | IR-11 | BTS-470K | Output Grid |
| R9 | 2200Ω | 1 | IR-25 | BW-1-2200 | Filter |
| R10 | 33Ω | ½ | IR-17 | | Surge Limiter |
| R11 | 47Ω | 1 | IR-41 | BW-1-47 | Filament Dropping |
| R12 | 220KΩ | ½ | IR-20 | BTS-220K | Phono Input Load |
| R13 | 470KΩ | ½ | IR-11 | BTS-470K | Tone Compensation |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: AIRCASTLE PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: CHICAGO PART No. | REPLACEMENT DATA: MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 1800Ω | 3.4Ω | 150Ω | .5Ω | Part Of SPK-10 | A-3332‡ | RO-1A‡ | A-3025‡ | ‡ Bend Mtg. Tabs Down And Mount On Original Bracket. |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA AIRCASTLE PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | V.C. IMP. | | ST-113† | | † Drill & Tap Magnet Frame. Remount Output Transformer. |
| SP1 | PM | 3.4Ω | SPK-10 | MOD.P4-X | 4A07† | |
| | CONE DIA. | V.C. DIA. | | | | |
| SP2 | 3 7/8" | 9/16" | | | | |

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA AIRCASTLE PART No. | REPLACEMENT DATA MEISSNER PART No. |
|---|---|---|---|---|---|
| L1 | Ant.Coil | 30Ω | 3.5Ω | | |
| L2 | Osc.Coil | 7.5Ω | .8Ω | LO-14 | |
| L3 | IF Trans. | 17Ω | 17Ω | LI-8 | 16-6658 |

## DIAL LIGHTS

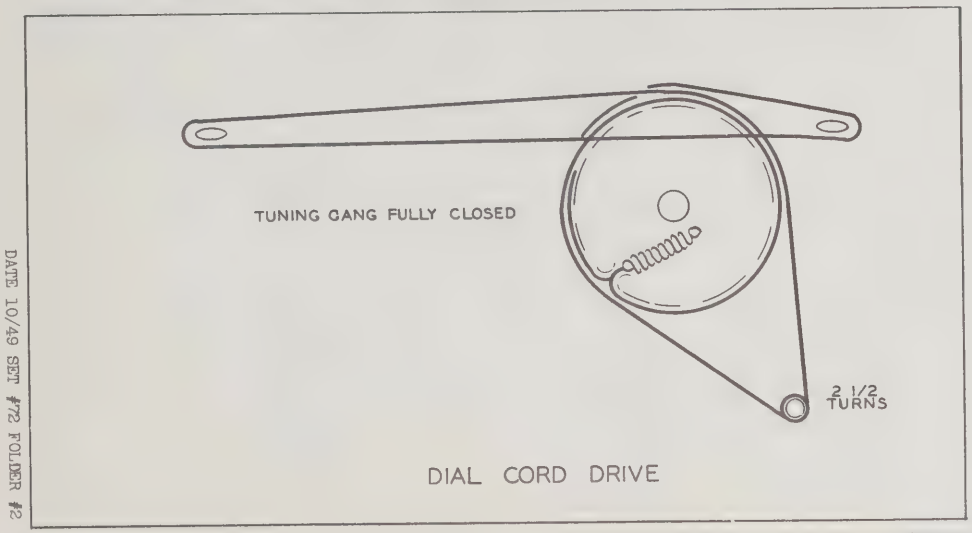
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA AIRCASTLE PART No. | | NOTES |
|---|---|---|---|---|---|---|---|
| M1 | Bayonet | 6-8 | .15 | Brown | PB-1 | | Type #47 |

## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA AIRCASTLE PART No. | ASTATIC PART No. | REMARKS |
|---|---|---|---|
| M2 | | L-70A | |

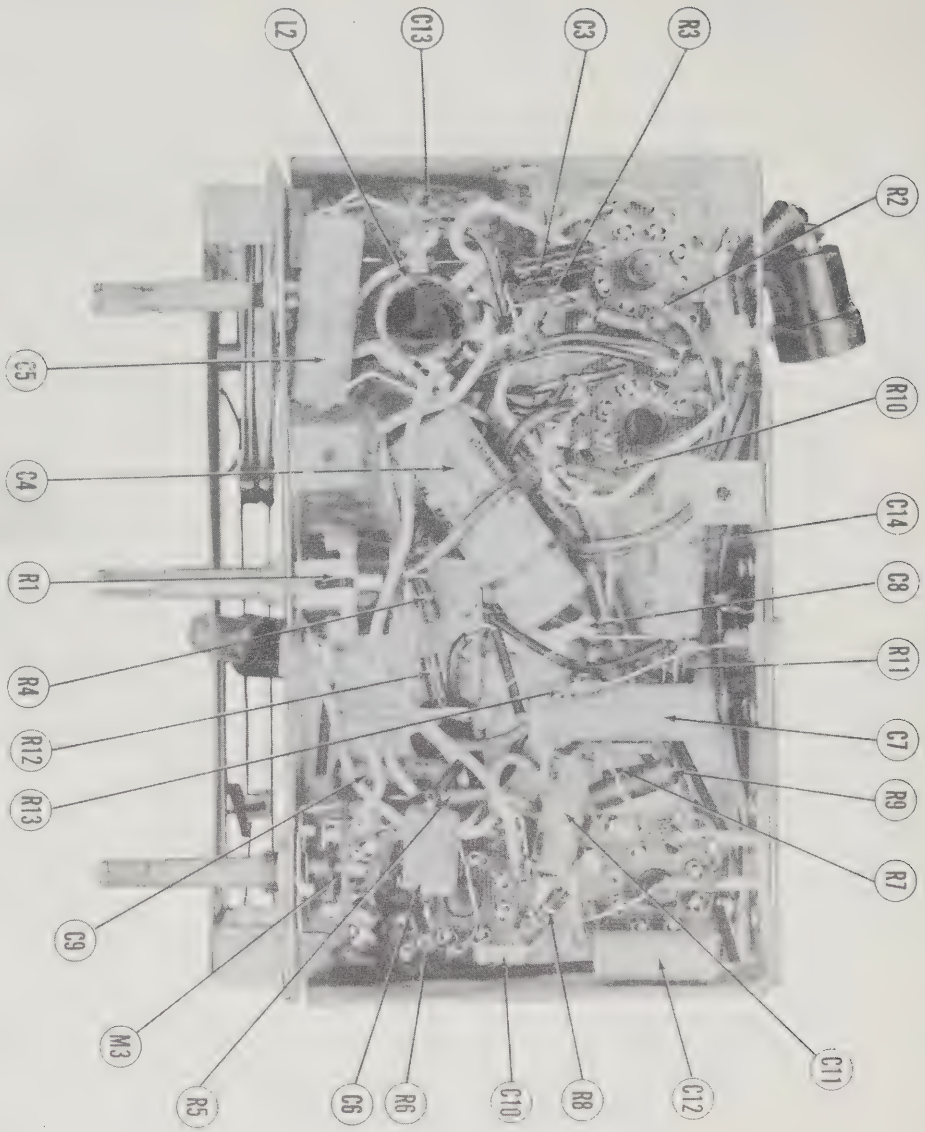
## MISCELLANEOUS

| ITEM No. | PART NAME | AIRCASTLE PART No. | NOTES |
|---|---|---|---|
| M3 | Switch | SW-1 | Radio-Phono |
| M4 | 2 Gang Var.Cap. | GC-6 | (25-490MMF, 31-225MMF) |




DIAL CORD DRIVE

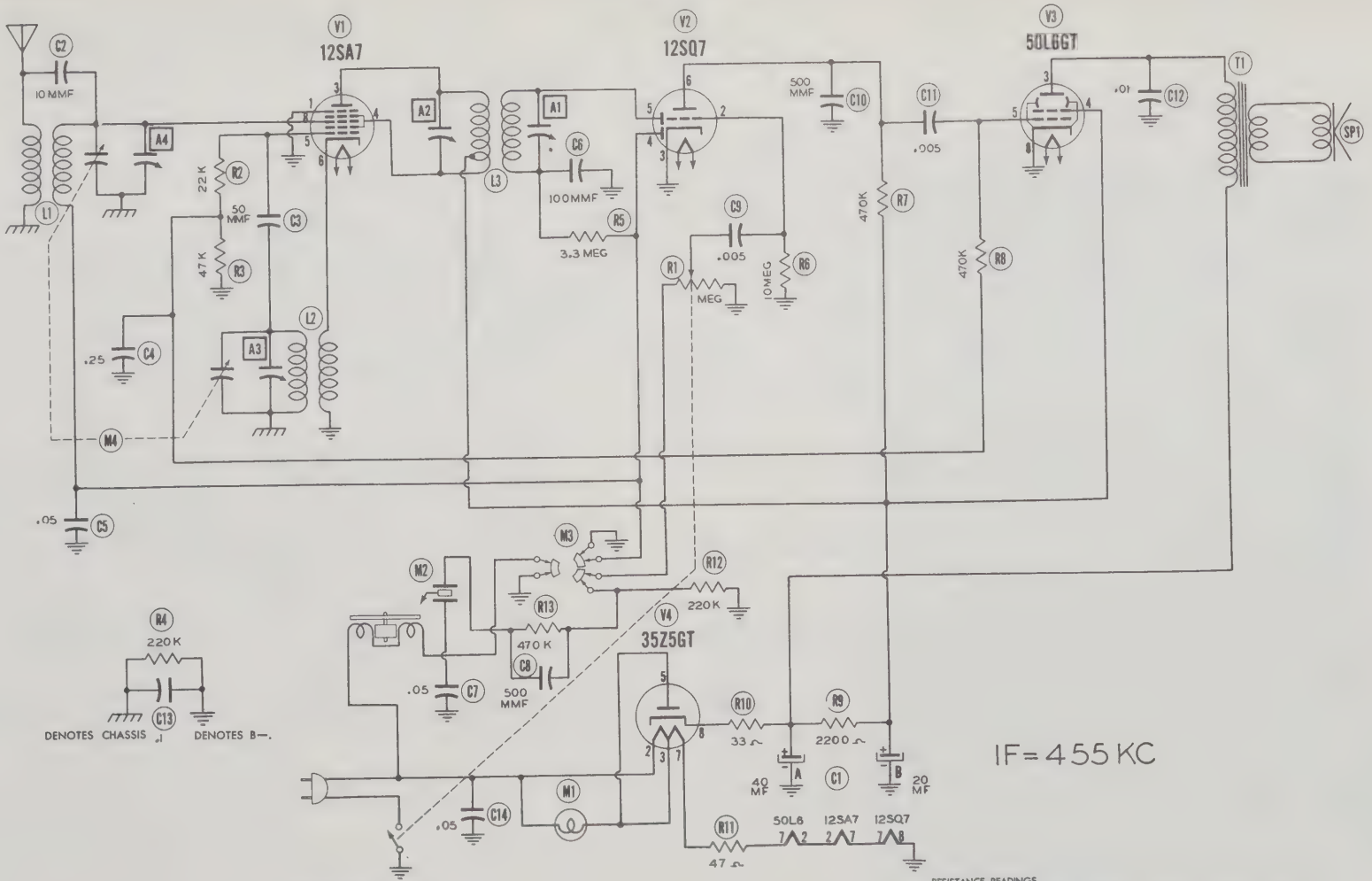
# CHASSIS—BOTTOM VIEW








AIRCASTLE MODEL 5036




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| V 1 | 12SA7GT | 0V | 24VAC | 95VDC | 95VDC | §-8.8 VDC | 0V | 12VAC | -.8VDC |
| V 2 | 12SQ7GT | 0V | -1VDC | 0V | -.7VDC | -.8VDC | 50VDC | 12VAC | 0Ω |
| V 3 | 50L6GT | 0V | 24VAC | 110VDC | 95VDC | -1.7VDC | -8.4VDC | 75VAC | 0V |
| V 4 | 35Z5GT | 0V | 112VAC | 110VAC | -8.4VDC | 110VAC | 0V | 83VAC | 120VDC |

§ Taken With Vacuum Tube Voltmeter.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| V 1 | 12SA7GT | 220KΩ | 26Ω | †2.2KΩ | †2.2KΩ | 80KΩ | 1Ω | 13Ω | 4 Meg. |
| V 2 | 12SQ7GT | 220KΩ | 10 Meg. | 0Ω | 1 Meg. | 4 Meg. | †470KΩ | 13Ω | 0Ω |
| V 3 | 50L6GT | 220KΩ | 26Ω | †280Ω | †2.2KΩ | 550KΩ | 50KΩ | 76Ω | 0Ω |
| V 4 | 35Z5GT | 220KΩ | 150Ω | 140Ω | 50KΩ | 140Ω | Inf. | 120Ω | 60KΩ |

† Measured From Pin 8 Of V4.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

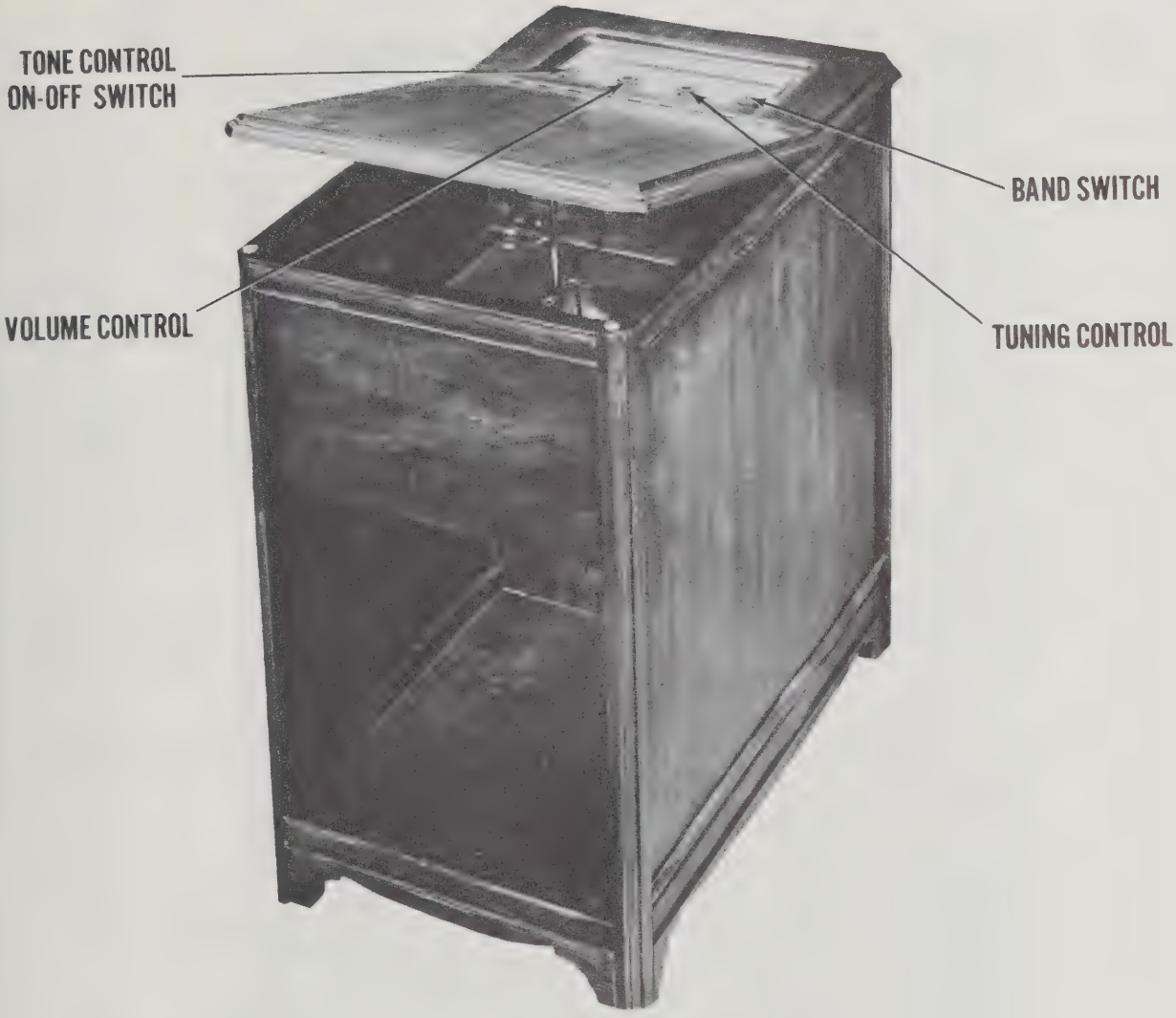
©Howard W. Sams & Co., Inc. 1949



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

# AIRLINE
# MODELS 94GSE-2735A, 94GSE-2736A

AIRLINE
MODELS 94GSE-2735A, 94GSE-2736A




AIRLINE
MODELS 94GSE-2735A, 94GSE-2736A

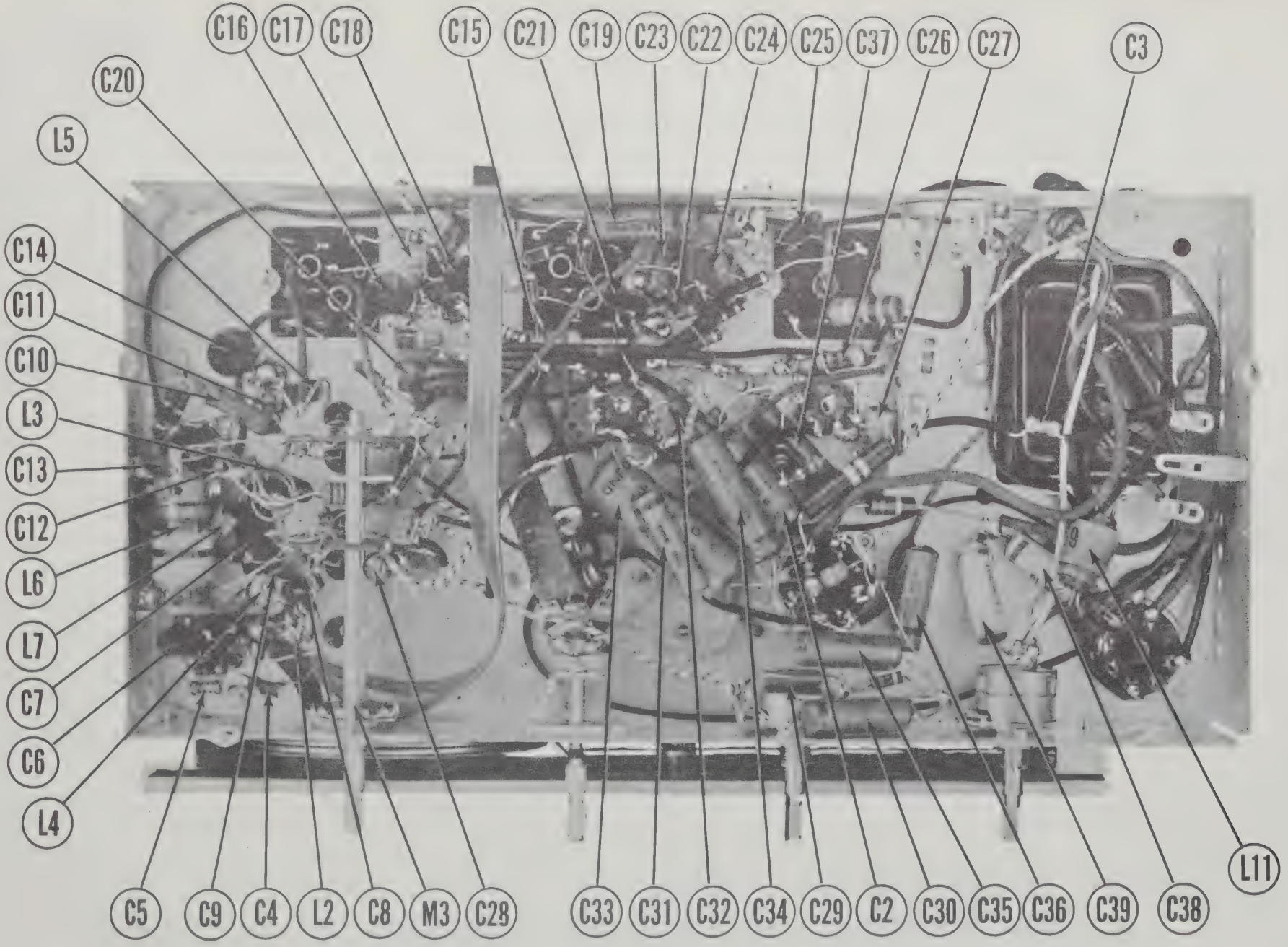
AIRLINE MODEL 94GSE-2735A

| | |
|---|---|
| TRADE NAME | Airline, Models 94GSE-2735A, 94GSE-2736A |
| SUPPLIER | Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois |
| TYPE SET | AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna. |
| TUBES(EIGHT) | Types 6BA6 FM RF Amp., 6BE6 Converter, 6BA6 1st IF Amp., 6AU6 FM 2nd IF Amp., 6AL5 Ratio Det., 6AV6 DET-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier |
| POWER SUPPLY | 105-125 Volts AC RATING: .65 Amp. @ 117 Volts AC |
| TUNING RANGE-BROADCAST | 530-1650KC FREQ. MOD. 87-109MC |

HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 10/49 SET #72 FOLDER #3


C16
C17
C18
C15
C21
C19
C23
C22
C24
C25
C37
C26
C27
C3
C20
L5
C14
C11
C10
L3
C13
C12
L6
L7
C7
C6
L4
C5
C9
C4
L2
C8
M3
C28
C33
C31
C32
C34
C29
C2
C30
C35
C36
C39
C38
L11

R29
R31
R30
R32
A
B
R28
A8
R33
R27
R7
R25
A9
R22
R24
A10
R23
R19
R18
R15
R17
R16
A11
A12
R9
R12
R10
R11
R6
R13
R8
R5
R2
R39
R34
R38
R37
R1
C
R21
R36
R26
R14
R35
R20
R3
R4

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: AIRLINE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| V1 | FM RF Amp. | 6BA6 | 6BA6 | 7BK | |
| V2 | Converter | 6BE6 | 6BE6 | 7CH | |
| V3 | 1st IF Amp. | 6BA6 | 6BA6 | 7BK | |
| V4 | FM 2nd IF Amp. | 6AU6 | 6AU6 | 7BK | |
| V5 | Ratio Det. | 6AL5 | 6AL5 | 6BT | |
| V6 | DET-AVC-AF | 6AV6 | 6AV6 | 7BT | |
| V7 | Power Output | 6V6GT | 6V6GT | 7AC | |
| V8 | Rectifier | 5Y3GT | 5Y3GT | 5T | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: AIRLINE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1A | 20 | 350 | 25E40 | AFH44H4A | UP2235C | | EL-322 | ■ Filter |
| B | 20 | 350 | | | | | | ▲ Filter |
| C | 20 | 25 | | | | | | Output Cath. Bypass |
| C2 | 4 | 50 | 25E23 | PRS150/4 | BR550 | | TA-55 | Stabilizing Cap |
| C3 | 100 | | 23E2027-2 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | FM Line Ant. Coupling |
| C4 | 56 | | 23E2027-4 | 1468-00005 | 5W5Q5 | GP1K-56 | 1FM-45 | RF Coupling |
| C5 | 100 | | 23E2027-2 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | RF Cath. Bypass |
| C6 | 5000 | | 23E2025 | 1467-005 | 1D5D5 | 811-005 | 29C1 | RF Fil. Bypass |
| C7 | 500 | 500 | 23E45 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | RF Screen Bypass |
| C8 | 500 | 500 | 23E45 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | RF Decoupling |
| C9 | 10 | | 23E25 | 1468-00001 | 5W5Q1 | GP1K-10 | MS-41 | RF Coupling |
| C10 | 50 | | Note 1 | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | Osc. Grid Cap |
| C11 | 16 | | 23E2030-6 | | | | | Fixed Trimmer |
| C12 | 100 | | 23E2027-2 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | Osc. Anode Bypass |
| C13 | .02 | 400 | 23E413 | P488-02 | GT4S2 | | TM-12 | Osc. Anode Decoupling |
| C14 | 5000 | | 23E2025 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Conv. Plate Decoupling |
| C15 | .05 | 200 | 23E2014-8 | P288-05 | GT2S5 | | TM-15 | AVC Filter |
| C16 | 5000 | | 23E2025 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AVC Filter |
| C17 | .05 | 200 | 23E2014-8 | P288-05 | GT2S5 | | TM-15 | 1st IF Cath. Bypass |
| C18 | 5000 | | 23E2025 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 1st IF Screen Bypass |
| C19 | .02 | 400 | 23E413 | P488-02 | GT4S2 | | TM-12 | 1st IF Plate Decoupling |
| C20 | .02 | 400 | 23E413 | P488-02 | GT4S2 | | TM-12 | RF Bypass Note 2 |
| C21 | 5000 | | 23E2025 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 2nd IF Grid Filter |
| C22A | 100 | | Note 3 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | Diode RF Filter |
| B | 100 | | Note 3 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | Diode RF Filter |
| C23 | .01 | 200 | 23E250 | P488-01 | GT2S1 | GP2-335-01 | TM-11 | 2nd IF Cath. Bypass |
| C24 | 5000 | | 23E2025 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 2nd IF Screen Bypass |
| C25 | 5000 | | 23E2025 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 2nd IF Plate Decoupling |
| C26 | 1000 | | 23E2012 | 1468-001 | 1W5D1 | GP2L-001 | 1FM-21 | Diode Load Cap |
| C27 | .002 | 200 | 23E205 | P688-002 | GT6D2 | GP2M-002 | TM-22 | De-emphasis |
| C28 | .05 | 200 | 23E2014-8 | P288-05 | GT2S5 | | TM-15 | Audio Coupling |
| C29 | 250 | 500 | 23E42 | 1468-00025 | 5W5T25 | GP2K-250 | 1FM-325 | Tone Compensation |
| C30 | .005 | 200 | 23E208 | P688-005 | GT6D5 | GP2M-005 | TM-25 | Tone Compensation |
| C31 | .01 | 200 | 23E250 | P488-01 | GT2S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C32 | 56 | | 23E2027-4 | 1468-00005 | 5W5Q5 | GP1K-56 | 1FM-45 | AF Plate Bypass |
| C33 | .2 | 400 | 23E420 | P488-22 | GT4P2 | | TC-2 | AF Plate Decoupling |
| C34 | .05 | 400 | 23E416 | P488-05 | GT4S5 | | TM-15 | Audio Coupling |
| C35 | .01 | 200 | 23E2014-6 | P488-01 | GT2S1 | GP2-335-01 | TM-11 | Tone Compensation |
| C36 | .001 | 600 | 23E604 | P688-001 | GT6D1 | | TM-21 | Output Plate Bypass |
| C37 | .01 | 200 | 23E2014-6 | P488-01 | GT2S1 | GP2-335-01 | TM-11 | RF Bypass Note 4 |
| C38 | .01 | 400 | 23E520 | P488-01 | GT4S1 | | TM-11 | Line Filter |
| C39 | .01 | 400 | 23E520 | P488-01 | GT4S1 | | TM-11 | Line Filter |

Note 1. Item C10 And R12 Are Combined Into One Unit Obtainable Under Mfgr. Part No. 23E2032.
Note 2. Some Models Use .005MFD In This Application.
Note 3. Item C22A, C22B, And R22 Are Combined Into One Unit Obtainable Under Mfgr. Part No. 23E2022-2.
Note 4. Not Used In All Models.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: AIRLINE PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| R1A | 2 Meg. | ½ | 28E23 | Q18-139X | AT-116 | Volume control, tapped @ 1 Meg |
| B | Shaft | | Not Req. | Not Req. | KSS-3 | Attach to R1A per instructions |
| R2A | 500KΩ | ½ | 28E22 | Q13-133 | AM-60-Z | Tone control |
| B | Shaft | | Not Req. | Not Req. | KSS-3 | Attach to R2A per instructions |
| C | Switch | | Not Req. | 76-1 | SW-A | Attach to R2A per instructions |

# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA: AIRLINE PART No. | REPLACEMENT DATA: MEISSNER PART No. |
|---|---|---|---|---|---|
| L1 | Loop Ant. | .3Ω | 3.5Ω | 20E458 | |
| L2 | FM Ant.Coil | 0Ω | | 20E81 | |
| L3 | FM RF Coil | 0Ω | | 20E85 | |
| L4 | RF Choke | 0Ω | | 2E52 | |
| L5 | FM Osc.Coil | 0Ω | | 20E84 | |
| L6 | AM Osc.Coil | 1Ω | 11Ω | 20E452 | 14-1060 |
| L7 | Filament Choke | .1Ω | | 2E47 | |
| L8A | 1st FM IF | | .5Ω | 20E451 | |
| B | 1st AM IF | | 15Ω | | |
| L9A | 2nd FM IF | | .5Ω | 20E451-2 | |
| B | 2nd AM IF | | 15Ω | | |
| L10 | Ratio Det. Trans. | 1Ω | 2Ω | 20E453 | |
| L11A | Line Choke | 0Ω | | 2E69 | |
| B | Line Choke | 0Ω | | | |

## DIAL LIGHTS

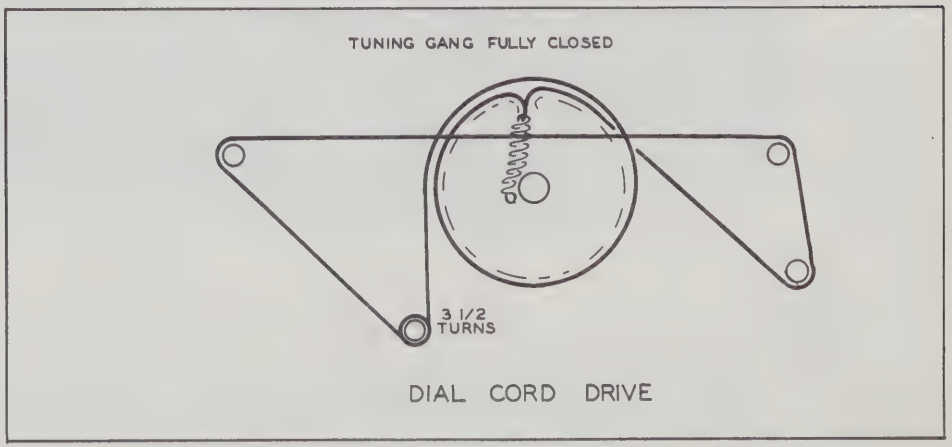
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA: AIRLINE PART No. | | NOTES |
|---|---|---|---|---|---|---|---|
| M1 | Bayonet | 6-8 | .25 | Blue | 40E2 | | Type #44 |

## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA: AIRLINE PART No. | REPLACEMENT DATA: ASTATIC PART No. | REMARKS |
|---|---|---|---|
| M2 | | LT3-M | |

## MISCELLANEOUS

| ITEM No. | PART NAME | AIRLINE PART No. | NOTES |
|---|---|---|---|
| M3 | Switch | 29E24 | Band-Phono |
| M4 | 2 Gang Var.Cap. | 24E49 | (27-380MMF, 23-150MMF) |
| | Dial Scale | 36E49 | |
| | Dial Pointer | 35E8-10 | |
| | Knob | 37E52-12 | Mahogany |
| | Knob | 37E52-13 | Mahogany (With Dot) |
| | Knob | 37E56-3 | Blonde |
| | Knob | 37E56-4 | Blonde (With Dot) |




DIAL CORD DRIVE

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | AIRLINE PART No. | IRC PART No. | |
| R3 | 1 Meg. | ½ | 27E105 | BTS-1 Meg. | RF Grid |
| R4 | 68Ω | ½ | 27E680 | BW-½-68 | RF Cathode |
| R5 | 47KΩ | ½ | 27E473-2 | BTS-47K | RF Screen |
| R6 | 1000Ω | ½ | 27E102 | BTS-1000 | RF Decoupling |
| R7 | 470KΩ | ½ | 27E474 | BTS-470K | Tone Compensation |
| R8 | 10Ω | ½ | 27E100 | | Parasitic Supp. |
| R9 | 1000Ω | ½ | 27E102 | BTS-1000 | Conv. Plate Decoupling |
| R10 | 10Ω | ½ | 27E100 | | Parasitic Supp. |
| R11 | 10Ω | ½ | 27E100 | | Parasitic Supp. |
| R12 | 22KΩ | ½ | Note 1 | BTS-22K | Osc. Grid |
| R13 | 27KΩ | 1 | 27E273-3 | BTA-27K | Osc. Plate Decoupling |
| R14 | 20KΩ | 5 | 27E1016 | AB-20K | Bleeder Wire Wound |
| R15 | 68KΩ | ½ | 27E683 | BTS-68K | FM 1st IF Transformer Shunt |
| R16 | 470KΩ | ½ | 27E474 | BTS-470K | AVC Network |
| R17 | 68Ω | ½ | 27E680 | BW-½-68 | 1st IF Cathode |
| R18 | 47KΩ | ½ | 27E473-2 | BTS-47K | 1st IF Screen |
| R19 | 1000Ω | ½ | 27E102 | BTS-1000 | 1st IF Plate Decoupling |
| R20 | 1 Meg. | ½ | 27E105 | BTS-1 Meg | AVC Network |
| R21 | 470KΩ | ½ | 27E474 | BTS-470K | Diode Load |
| R22 | 47KΩ | ½ | Note 3 | BTS-47K | Diode Filter |
| R23 | 22KΩ | ½ | 27E223 | BTS-22K | FM 2nd IF Grid |
| R24 | 68KΩ | ½ | 27E683 | BTS-68K | FM 2nd IF Transformer Shunt |
| R25 | 68Ω | ½ | 27E680 | BW-½-68 | FM 2nd IF Cathode |
| R26 | 33KΩ | ½ | 27E333-2 | BTS-33K | FM 2nd IF Screen |
| R27 | 1000Ω | ½ | 27E102 | BTS-1000 | FM 2nd IF Plate Decoupling |
| R28 | 180Ω | ½ | 27E181 | BW-½-180 | Balancing |
| R29 | 39KΩ | ½ | 27E393 | BTS-39K | De-emphasis |
| R30 | 6800Ω | ½ | 27E682 | BTS-6800 | Ratio Det. Diode Load |
| R31 | 6800Ω | ½ | 27E682 | BTS-6800 | Ratio Det. Diode Load |
| R32 | 2.2Ω | 1 | 27E1015-2 | BW-1-2.2 | Ratio Det. Filament Wire Wound |
| R33 | 2.2 Meg. | ½ | 27E225 | BTS-2.2 Meg | AVC Network |
| R34 | 68KΩ | ½ | 27E683 | BTS-68K | Tone Compensation |
| R35 | 10 Meg. | ½ | 27E106 | BTS-10 Meg | AF Grid |
| R36 | 220KΩ | ½ | 27E224 | BTS-220K | AF Plate |
| R37 | 220KΩ | ½ | 27E224 | BTS-220K | AF Plate |
| R38 | 470KΩ | ½ | 27E474 | BTS-470K | Output Grid |
| R39 | 330Ω | 1 | 27E331-3 | BTA-330 | Output Cathode |

Note 1. Items C10 And R12 Are Combined Into One Unit, Obtainable Under Mfgr's Part No. 23E2032.

Note 3. Items C22A, C22B And R22 Are Combined Into One Unit, Obtainable Under Mfgr's Part No. 23E2022-2.

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | AIRLINE PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. |
| T1 | 117VAC @ .65A | 600VCT .082A DC | 5VAC @ 2A | 6.3VAC @ 2.5A | 22E37 | P-6012†† # | PH-70# | P-2952†† # |

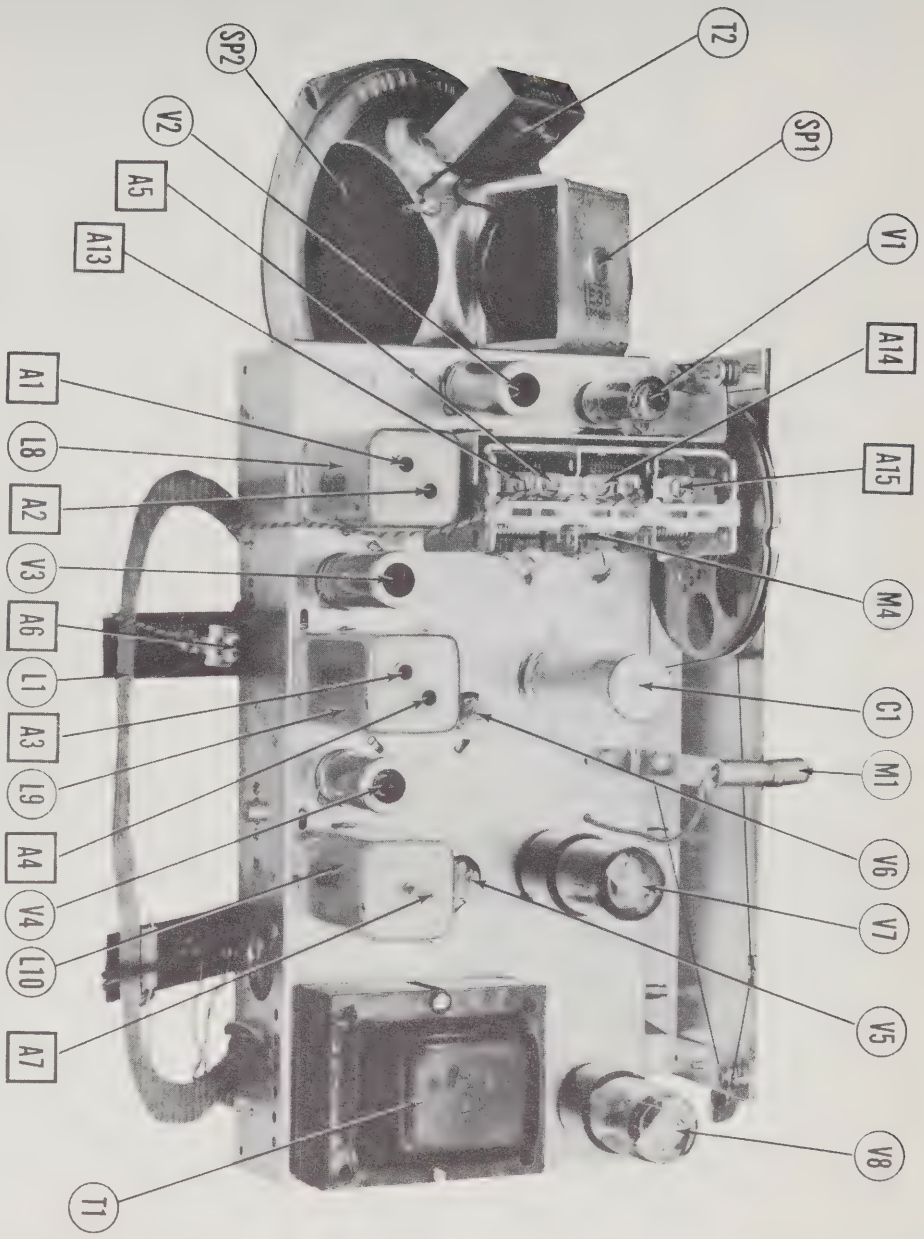
†† Add series resistor to reduce plate voltage.
# Drill new mounting holes.

## TRANSFORMER (OUTPUT)

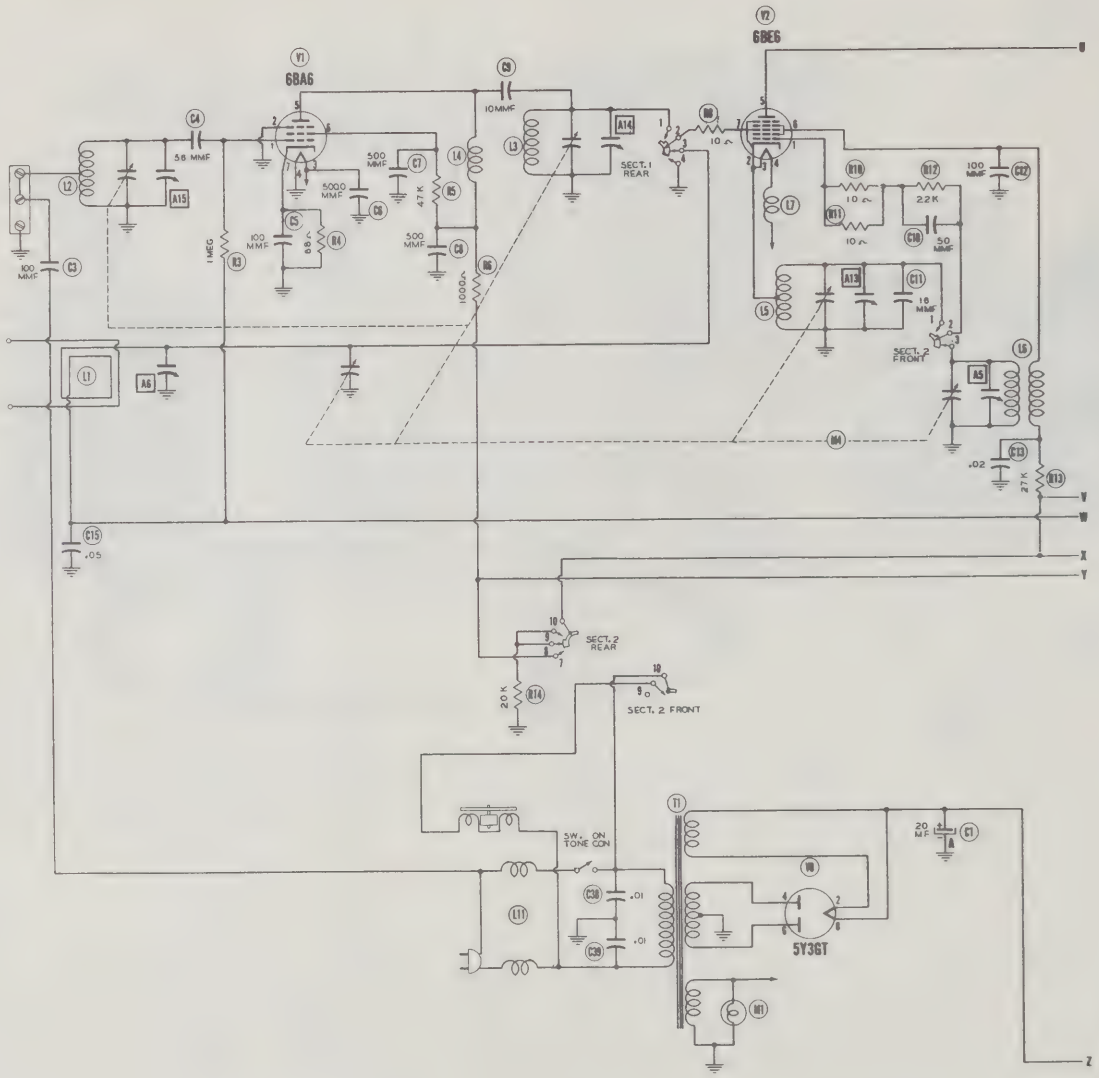
| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | AIRLINE PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| T2 | 5200Ω | 4Ω | 285Ω | .36Ω | Part of 1E36 | A-3823 | RO-302 | A-2902 | |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | | | AIRLINE PART No. | JENSEN PART No. | QUAM PART No. | |
| SP1 | FIELD RES. 530Ω | V.C. IMP. 4Ω | 1E36 | ST-746 MOD.P8-S | § | § Supplied On Request. Specify Field Resistance, Current & Humbucking Coil |
| SP2 | CONE DIA. 7 1/4" | V.C. DIA. 3/4" | | | | |




DATE 10/49 SET #72 FOLDER #3




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | -.2VDC | 0V | 6.3VAC | 0V | 240VDC | 100VDC | [illegible] | |
| [illegible] | [illegible] | §-7.3VDC | 0V | 0V | 6.3VAC | 260VDC | 92VDC | [illegible] | |
| [illegible] | [illegible] | §-.4VDC | 0V | 0V | 6.3VAC | 250VDC | 65VDC | [illegible] | |
| [illegible] | [illegible] | -.2VDC | 0V | 6.3VAC | 0V | 250VDC | 110VDC | [illegible] | |
| [illegible] | [illegible] | 0V | 0V | 6.3VAC | 0V | 242VDC | 150VDC | [illegible] | |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 0V | 0V | [illegible] | |
| [illegible] | [illegible] | [illegible] | -.2VDC | 0V | 6.3VAC | -.4VDC | -.4VDC | [illegible] | |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 250VDC | 266VDC | 0V | 180VDC |
| [illegible] | [illegible] | 0V | 300VDC | 0V | 295VAC | 0V | 295VAC | 0V | [illegible] |

‡ Taken With Vacuum Tube Voltmeter.

RESISTANCE READINGS

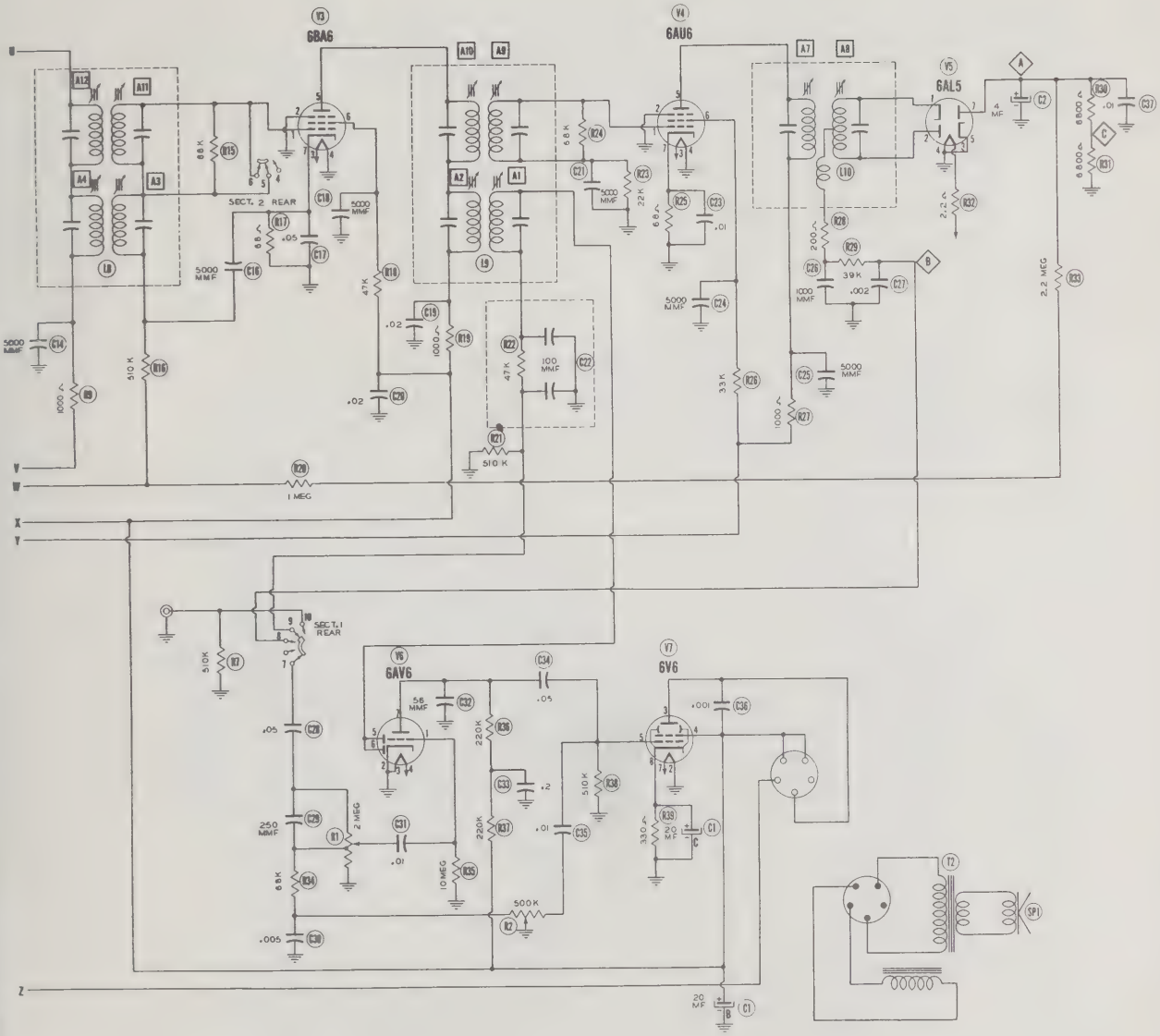
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | 6BA6 | [illegible] Meg. | 0Ω | .1Ω | 0Ω | †1.5KΩ | 148KΩ | 68Ω | |
| [illegible] | 6BE6 | 220K | 0Ω | 0Ω | .1Ω | †1.5KΩ | 127KΩ | 1.5 Meg | |
| [illegible] | 6BE6 | 220K | 0Ω | 0Ω | .1Ω | †1.5KΩ | 127KΩ | 10Ω | |
| [illegible] | 6BA6 | 2 Meg. | 0Ω | .1Ω | 0Ω | †1.5KΩ | 147KΩ | 68Ω | |
| [illegible] | 6BA6 | 220KΩ | 0Ω | .1Ω | 0Ω | †1.5KΩ | 133KΩ | 68Ω | |
| [illegible] | 6BA6 | Inf. | Inf. | 1Ω | 0Ω | 0Ω | 0Ω | 1.5KΩ | |
| V8 | 6AV6 | 10 Meg. | 0Ω | 0Ω | .1Ω | 500KΩ | 500KΩ | 1440KΩ | |
| V9 | 6V6GT | 0Ω | 0Ω | 1800Ω | †820Ω | 500KΩ | 220KΩ | .1Ω | 330Ω |
| V8 | Y63 | Inf. | 25KΩ | Inf. | 135Ω | Inf. | 125Ω | Inf. | 25KΩ |

† Measured From Pin 8 Of V8.
‡ Taken In FM Position.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.


© Howard W. Sams & Co., Inc. 1949




IF = 455 KC AM

IF = 10.7 MC FM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1949

## ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning condenser completely closed and move pointer (if necessary) so that lower end points to calibration mark on lower lip of dial back plate.

AM IF transformers should be aligned before aligning FM IF transformer. AM transformers should be checked after FM transformers are aligned.

Loop should be maintained in same relative position to chassis as when receiversis in cabinet.

## AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | .2MFD | High side to stator of AM antenna section of tuning gang. Low side to chasssis. | 455KC (400∿ Mod.) | AM (center position) | Point of non interference | Across voice coil | A1,A2, A3,A4 | Adjust for maximum output. |
| 2. | | High side to blue lead attached to loop. Low side to black lead. | 1650KC | " | Tuning gang fully open | " | A5 | " |
| 3. | | " | 1400KC | " | Tune for maximum output. | " | A6 | " |

## FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4. | .002MFD | High side to pin 1 (Grid) of 6AU6 (V4).Low side to chassis. | 10.7MC (Unmod.) | FM (ext. counter clockwise) | Point of non interference | DC Probe to Point (A). Common to chassis. | A7 | Adjust for maximum deflection. |
| 5. | .002MFD | " | " | " | " | DC Probe to Point (B). Common to Point (C) | A8 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |
| 6. | .002MFD | High side to stator of FM antenna section of tuning gang. Low side to chassis. | " | " | " | DC Probe to Point (A). Common to chassis. | A9,A10 A11, A12 | Adjust for maximum deflection. |

## FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4. | .002MFD | High side to pin 1 (Grid) of 6BA6 (V3).Low side to chassis. | 10.7MC (450KC Sweep) | FM (Ext. counter clockwise) | Point of non interference | Vert.Amp. to Point (A). Low side to chassis. | A7,A9, A10 | Disconnect stabilizer capacitor C2. Adjust for max. amplitude and symmetry as per Fig 1. |
| 5. | .002MFD | High side to stator of FM antenna section of tuning gang. Low side to chassis. | " | " | " | " | A11, A12 | " |
| 6. | .002MFD | " | " | " | " | Vert.Amp. to Point (B). Low side to chassis. | A8 | Reconnect capacitor. Adjust A8 so 10.7MC marker appears at center of crossover lines as per Fig 2. Slightly retouch A7 for maximum amplitude and straightness of diagonal lines. |

## FM RF ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 7. | .002MFD capacitor in series with 300Ω carbon res. | High side thru dummy to pin 1 of antenna terminal strip. Low side to chassis. | 108MC | FM | Set pointer 5 1/2 inches to right of low freq. calibration mark. | DC Probe to Point (A). Common to chassis. | A13 | Adjust for maximum deflection. |
| 8. | " | " | 104MC | " | Tune for maximum deflection | " | A14, A15 | " |

FIG. 1

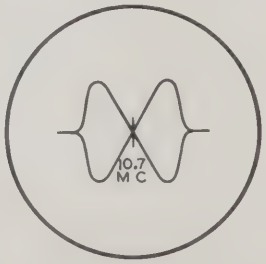



FIG. 2

PHOTOFACT* Folder

# AIRLINE MODELS
# 94WG-3006A, 94WG-3008A
# 94WG-3009A

## IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

94WG-3008A

AIRLINE MODELS
94WG-3006A, 94WG-3008A
94WG-3009A

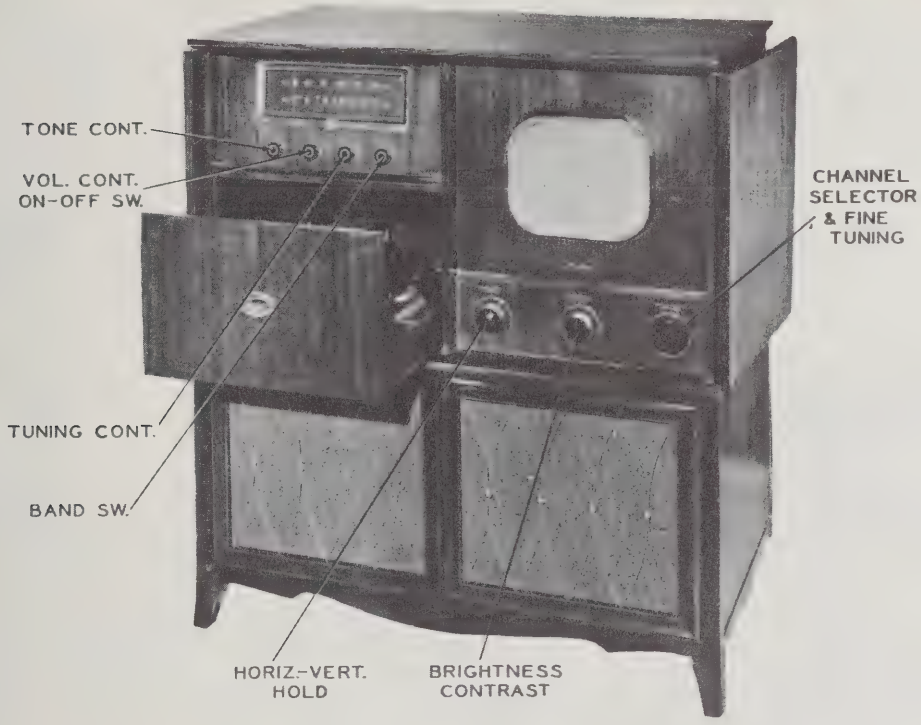
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

Date 10/49 Set No. 72—Folder No. 4

PHOTOFACT* Folder
*TRADE MARK

# AIRLINE MODELS 94WG-3006A, 94WG-3008A, 94WG-3009A




AIRLINE MODEL 94WG-3008A

| | |
|---|---|
| TRADE NAME | Airline Models, 94WG-3006A, 94WG-3008A, 94WG-3009A |
| SUPPLIER | Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois |
| TYPE SET | FM-AM-Phono-TV Combination Receiver (Some Models TV only.) |
| TUBES | Thirty (TV-Radio Models)<br>Twenty-One (TV Only Models) |
| POWER SUPPLY | 105-125 Volts AC-60 Cycles |
| TUNING RANGE | AM 540-1600KC<br>FM 88-108MC<br>TV Channels 2 thru 13 |
| RATING: | 1.8 Amp. @ 117 Volts AC (TV)<br>.78 Amp. @ 117 Volts AC (Radio) |

## INDEX

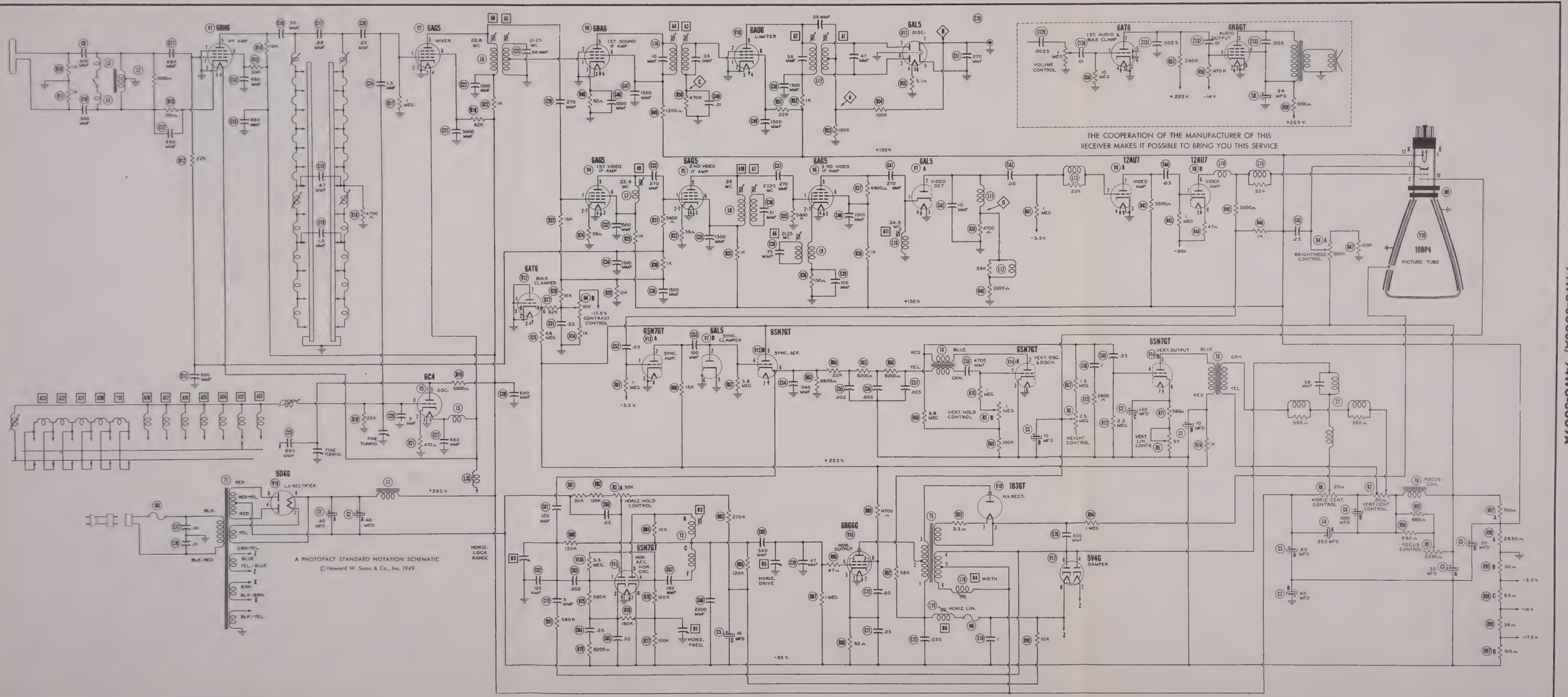

| | | | |
|---|---|---|---|
| Alignment Instructions | 6,7 | Photographs (continued) Chassis-Top View (TV) | 3,21 |
| Block Diagram | 25 | RF Tuner | 20 |
| Dial Cord Stringing | 24 | Resistor and Alignment Identification (Radio) | 22 |
| Disassembly Instructions | 27 | Resistor Identification (TV) | 12,17 |
| Horizontal Oscillator and Linearity Adjustments | 24 | Trans., Inductor and Alignment Identification | 4,9 |
| Parts List and Description | 13,14,15,16 | Schematic (Radio) | 19,26 |
| Photographs Cabinet-Rear View | 27 | Schematic (TV) | 2 |
| Capacitor and Inductor Identification (Radio) | 23 | Tube Placement Chart | 5 |
| Capacitor Identification (TV) | 11,18 | Voltage and Resistance Measurements | 8 |
| Chassis-Top View (Radio) | 10 | | |


AIRLINE MODELS 94WG-3006A, 94WG-3008A, 94WG-3009A

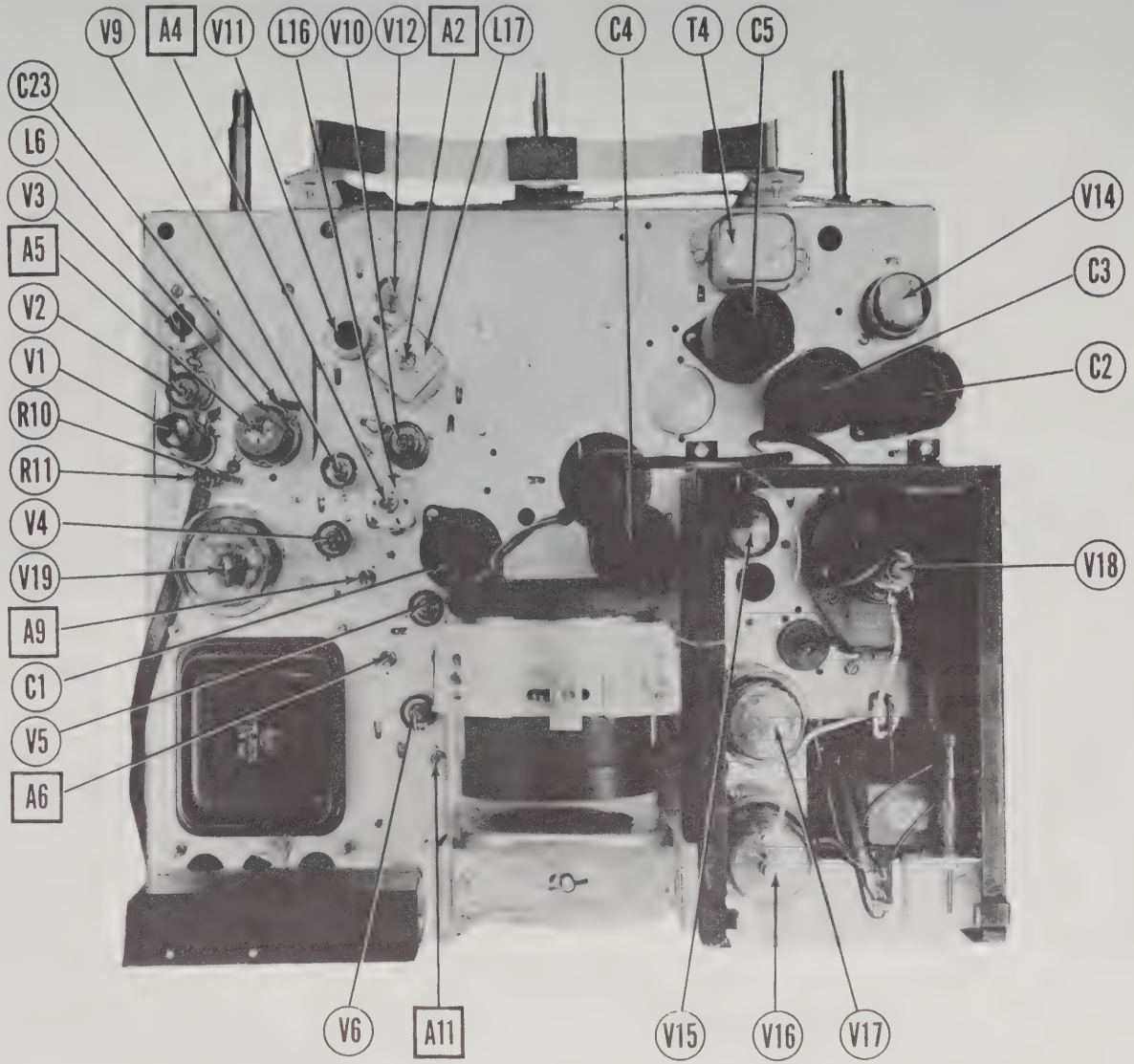
**HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 10/49 SET #72 FOLDER # 4

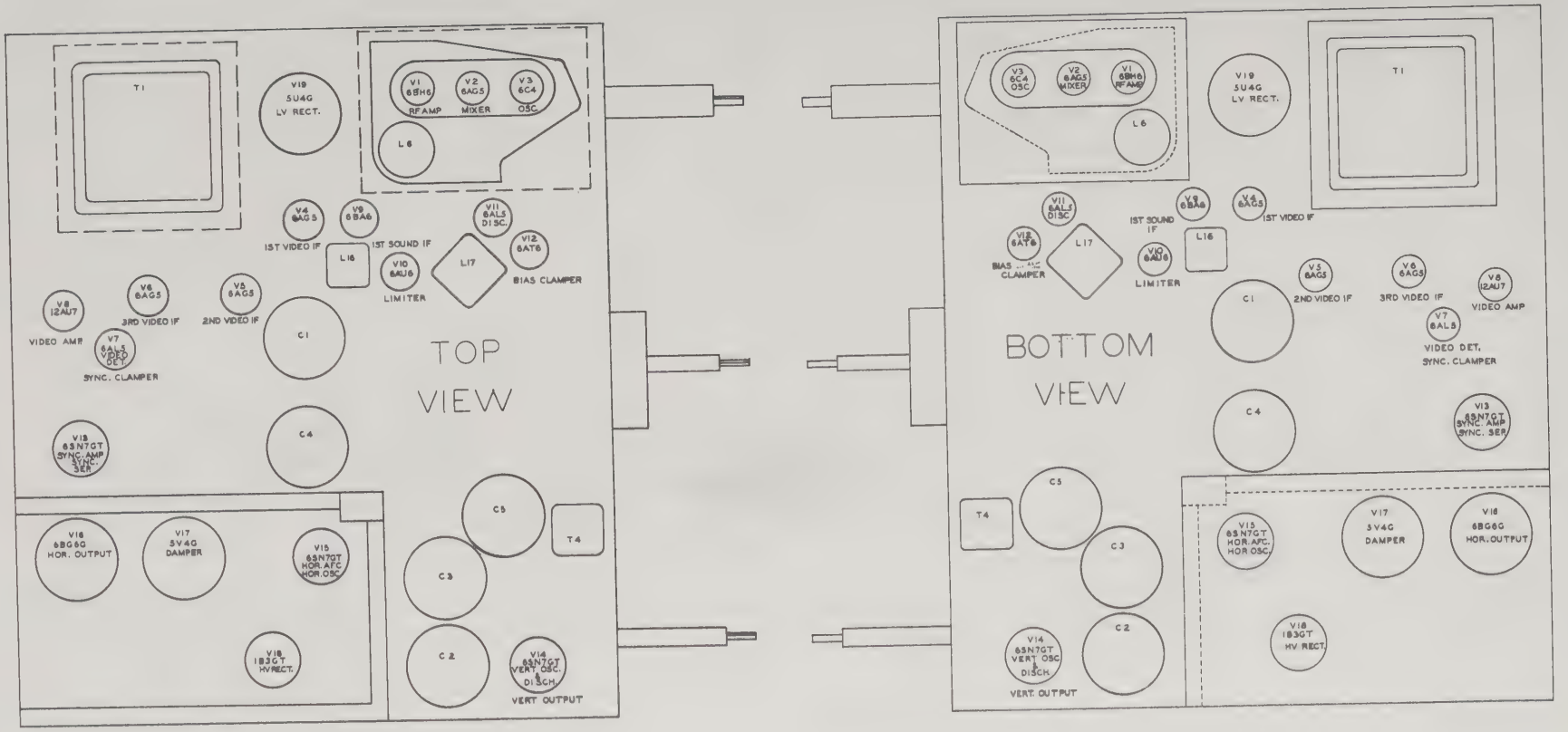



AIRLINE MODELS 94WG-3006A, 94WG-3008A, 94WG-3009A




CHASSIS TOP VIEW

CHASSIS BOTTOM VIEW-TRANS.,INDUCTOR AND ALIGNMENT IDENTIFICATION




TUBE PLACEMENT CHART

# TV-ALIGNMENT INSTRUCTIONS

**PRE-ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

If receiver is to be aligned with picture tube removed, it is recommended to also remove the 6SN7GT (V15) horizontal oscillator tube to eliminate high voltage shock hazard.
When complete alignment is required, it is recommended that it be done in the order given below.

**SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM**

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | .05MFD | High side to pin 1 (Grid) of 6AU6 (V10). Low side to chassis. | 21.25MC (Unmod.) | 13 | DC Probe thru 1 Meg. to Point (A) Common to chassis. | A1,A2 | Detune A1. Adjust A2 for maximum deflection. |
| 2. | .05MFD | " | " | " | DC Probe thru 1 Meg. to Point (B) Common to chassis. | A1 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |
| 3. | .05MFD | High side to pin 1 (Grid) of 6BA6 (V9). Low side to chassis. | " | " | DC Probe thru 1 Meg. to Point (C) Common to chassis. | A3,A4 | Adjust for maximum deflection. |

**SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE**

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | .05MFD | High side to pin 1 (Grid) of 6BA6 (V9). Low side to chassis. | 21.25MC (1MC Sweep) | 21.25MC | 13 | Vert. Amp. to Point (C) Low side to chassis. | A3,A4 | If 60\ sweep is used, shunt R50 with 5600Ω. Adjust A3, A4 for maximum amplitude and symmetry as per Fig 1. |
| 2. | .05MFD | " | " | " | " | Vert. Amp. to Point (B) Low side to chassis. | A1,A2 | Adjust A2 for maximum amplitude and straightness of diagonal line as per Fig 2. Adjust A1 so 21.25MC marker is at center of diagonal line. Continue with step 4. |

**VIDEO IF ALIGNMENT**

Before starting video IF alignment, connect VTVM between junction of R28 and R29 and chassis. Adjust contrast control for reading of -3 volts. Leave contrast control at this setting for entire video IF alignment.
Remove 6C4 local oscillator tube (V3) to prevent erroneous indications.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 4. | | High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis. | 21.25MC | 13 | DC Probe to Point (D) Common to chassis. | A5,A6 | Adjust for minimum deflection. |
| 5. | | " | 27.25MC | " | " | A7 | " |
| 6. | | " | 22.8MC | " | " | A8 | Adjust for maximum deflection. |
| 7. | | " | 23.9MC | " | " | A9 | " |
| 8. | | " | 26.0MC | " | " | A10 | " |
| 9. | | " | 24.5MC | " | " | A11 | " |

**OVERALL VIDEO IF RESPONSE CHECK**

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 10. | | High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis. | 24MC (10MC Sweep) | 21.25MC<br>23.0MC<br>25.0MC<br>25.75MC<br>27.25MC | 13 | Vert. Amp. to Point (D) Low side to chassis. | | Check response curve obtained on scope. If necessary retouch A5 thru A11 for proper wave shape and placement of markers as per Fig 3. |

**OSCILLATOR ALIGNMENT**

The RF and mixer lines of the tuner used in this receiver are pre-set at the factory and normally do not require adjustment in the field.
To align the oscillator circuits the sound IF system must be accurately aligned. Set the fine tuning control to the midpoint of its range and proceed as follows.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | CHANNEL | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 11. | Two 125Ω carbon res. | Across antenna terminals with 125Ω resistor in each generator lead. | 215.75MC | 13 | DC Probe thru 1 Meg. to Point (B) Common to chassis. | A12 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |
| 12. | " | " | 209.75MC<br>203.75MC<br>197.75MC<br>191.75MC<br>185.75MC<br>179.75MC<br>87.75MC<br>81.75MC<br>71.75MC<br>65.75MC<br>59.75MC | 12<br>11<br>10<br>9<br>8<br>7<br>6<br>5<br>4<br>3<br>2 | " | A13<br>A14<br>A15<br>A16<br>A17<br>A18<br>A19<br>A20<br>A21<br>A22<br>A23 | " |

# RADIO ALIGNMENT INSTRUCTIONS

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated screwdriver for adjusting.

**AM ALIGNMENT**

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 13 | .1MFD | High side to pin 7 (Grid) of 12AT7 (V21). Low side to chassis. | 455KC (400∿ Mod.) | AM (3rd position clockwise) | Tuning gang fully open | Across voice coil | A24, A25, A26, A27 | Adjust for maximum output. |
| 14 | 200MMFD | High side to dipole antenna terminal. Low side to chassis. | 1620KC | " | " | " | A28 | " |
| 15 | 200MMFD | " | 1400KC | " | Tune for maximum signal. Set pointer at 1400KC on dial. | " | A29, A30 | " |

**FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM**

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 16 | .01MFD | High side to pin 1 (Grid) of 6BA6 (V23). Low side to chassis. | 10.7MC (Unmod.) | FM (Fully clockwise) | Tuning gang fully open | DC Probe to Point (E). Low side to chassis. | A31 | Adjust for maximum deflection. |
| 17 | .01MFD | " | " | " | " | DC Probe to Point (E). Common to chassis. | A32 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |
| 18 | .01MFD | High side to pin 1 (Grid) of 6BA6 (V22). Low side to chassis. | " | " | " | DC Probe to point (E). Common to chassis. | A33, A34 | Alternately load the primary and secondary windings with 1000Ω. (That is, when adjusting the secondary shunt the primary with 1000Ω and vice-versa.) Repeat steps 16 and 17. |
| 19 | .01MFD | High side to FM RF section of tuning gang. Low side to chassis. | " | " | " | " | A35, A36 | Alternately load primary and secondary as above with 1000Ω, and adjust for max. deflection. |

**FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE**

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 16 | .01MFD | High side to pin 1 (Grid) of 6BA6 (V22). Low side to chassis. | 10.7MC (450KC Sweep) | FM | Point of non interference | Vert. Amp. to Point (E). Low side to chassis. | A31, A33, A34 | Disconnect stabilizer capacitor C7. Adjust for maximum amplitude and symmetry as per Fig 4. |
| 17 | .01MFD | High side to pin 7 (Grid) of 12AT7 (V21). Low side to chassis. | " | " | " | " | A35, A36 | " |
| 18 | .01MFD | " | " | " | " | Vert. Amp. to Point (F). Low side to chassis. | A32 | Reconnect stabilizer capacitor C7. Adjust A32 so crossover point occurs at center of pattern as per Fig 5. Slightly retouch A31 for maximum amplitude and straightness of crossover lines. Continue with step 20. |

**FM RF ALIGNMENT**

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 20 | 300Ω carbon res. | High side thru 300Ω to terminal 1 of dipole terminal strip. Low side to chassis. | 108.4MC (Unmod.) | FM | Tuning gang fully open | DC Probe to Point (E). Common to chassis. | A37 | Adjust for maximum deflection. |
| 21 | " | " | 104.5MC (Unmod.) | " | Tune for maximum signal | " | A38, A39 | Adjust for maximum deflection. Repeat steps 20 and 21 to assure accurate oscillator and RF alignment. |

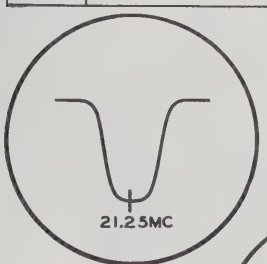


FIG. 1

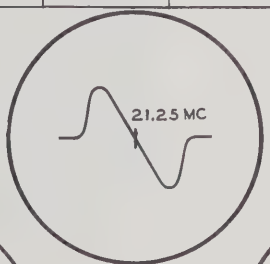


FIG. 2

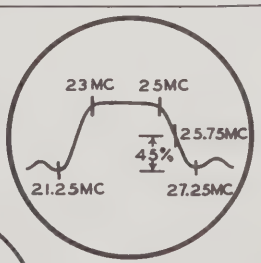


FIG. 3

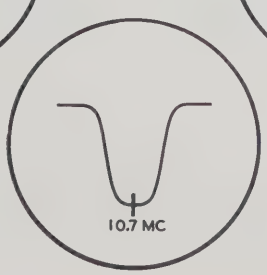


FIG. 4

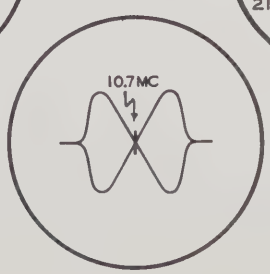


FIG. 5

AIRLINE MODELS 94WG-3006A, 94WG-3008A, 94WG-3009A

# VOLTAGE AND RESISTANCE MEASUREMENTS

## VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6BH6 | -.8VDC | .8VDC | 0V | 6.3VAC | 190VDC | 175VDC | 0V | | |
| V 2 | 6AG5 | -.3VDC | 0V | 0V | 6.3VAC | 250VDC | 95VDC | 0V | | |
| V 3 | 6C4 | 195VDC | 0V | 0V | 6.3VAC | 195VDC | §-3 VDC | 4.3VDC | | |
| V 4 | 6AG5 | -1VDC | .3VDC | 6.3VAC | 0V | 125VDC | 125VDC | .3VDC | | |
| V 5 | 6AG5 | -1VDC | .2VDC | 6.3VAC | 0V | 125VDC | 125VDC | .2VDC | | |
| V 6 | 6AG5 | 0V | 1.3VDC | 6.3VAC | 0V | 80VDC | 125VDC | 1.3VDC | | |
| V 7 | 6AL5 | 0V | -.8VDC | 0V | 6.3VAC | 0V | 0V | -.1VDC | | |
| V 8 | 12AU7 | 120VDC | -.8VDC | 0V | 6.3VAC | 6.3VAC | ≠150VDC | ≠ 0V | ≠.7VDC | 0V |
| V 9 | 6BA6 | 0V | 0V | 0V | 6.3VAC | 117VDC | 117VDC | 1.2VDC | | |
| V 10 | 6AU6 | 0V | 0V | 0V | 6.3VAC | 130VDC | 100VDC | 0V | | |
| V 11 | 6AL5 | .1VDC | -.3VDC | 6.3VAC | 1.3VAC | 0V | 0V | -.3VDC | | |
| V 12 | 6AT6 | 0V | 0V | 0V | 6.3VAC | 0V | -.1VDC | 0V | | |
| V 13 | 6SN7GT | -.8VDC | 147VDC | 0V | -.9VDC | 215VDC | 7VDC | 6.3VAC | 0V | |
| V 14 | 6SN7GT | ≠-1.2VDC | ≠75VDC ≠135VDC | 0V | ≠ 0V | ≠290VDC | ≠5VDC ♦16VDC | 6.3VAC | 0V | |
| V 15 | 6SN7GT | ≠-1.9 VDC | ≠105VDC | ≠-5.2 VDC | ≠-43VDC | ≠145VDC | ≠ 0V | 6.3VAC | 0V | |
| V 16 | 6BG6G | 0V | 6.3VAC | ≠8VDC | ≠ 0V | ≠0V | ≠ 0V | 0V | ≠250VDC | TOP CAP * |
| V 17 | 5V4G | 0V | 320VDC | 320VDC | 250VDC | 0V | 250VDC | 0V | 320VDC | |
| V 18 | 1B3GT | * DO NOT MEASURE. | | | | | | | | |
| V 19 | 5U4G | 0V | 265VDC | 0V | 380VAC | 0V | 380VAC | 0V | 265VDC | |
| V 20 | 6BA6 | -.1VDC | 0V | 0V | 6.3VAC | 240VDC | 127VDC | .6VDC | | |
| V21A | 12AT7 | 230VDC | §-6.2 VDC | .1VDC | 0V | 0V | 227VDC | 0V | 5VDC | 6.3VAC |
| ‡ V21B | 12AT7 | 233VDC | §-.4 VDC | .1VDC | 0V | 0V | 232VDC | 0V | 4.4VDC | 6.3VAC |
| V22 | 6BA6 | 0V | 0V | 0V | 6.3VAC | 237VDC | 90VDC | .6VDC | | |
| ‡ V23 | 6BA6 | 0V | 0V | 0V | 6.3VAC | 225VDC | 100VDC | .8VDC | | |
| ‡ V24 | 6AL5 | .1VDC | .1VDC | 0V | 5.4VAC | .2VDC | 0V | -.2VDC | | |
| V25 | 6AV6 | -.5VDC | 0V | 0V | 6.3VAC | 0V | -.3VDC | 90VDC | | |
| V26 | 6AV6 | -.5VDC | 0V | 0V | 6.3VAC | 0V | 0V | 100VDC | | |
| V27 | 6K6GT | 0V | 6.3VAC | 320VDC | 250VDC | 0V | 0V | 0V | 21VDC | |
| V28 | 6K6GT | 100VDC | 6.3VAC | 320VDC | 250VDC | 0V | 0V | 0V | 21VDC | |
| V29 | 5Y3GT | 0V | 335VDC | 0V | 320VAC | 0V | 320VAC | 0V | 335VDC | |
| V30 | 10BP4 | 135VDC | 60VDC | PIN 10 310VDC | PIN 11 210VDC | PIN 12 135VDC | | | | |

Note 1: Contrast Control Set At Maximum For These Measurements.

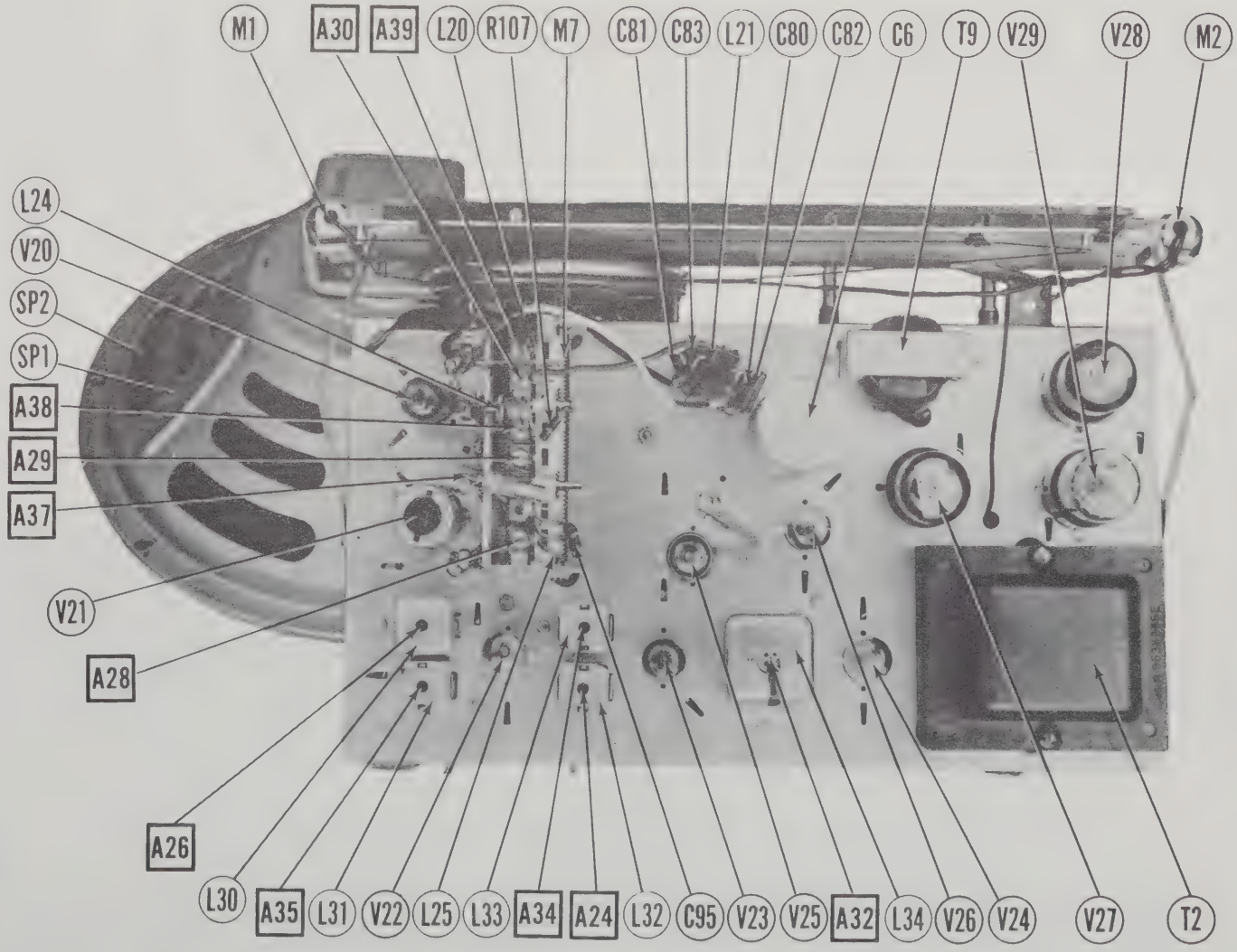
‡ Taken In FM Position.
§ Taken With Vacuum Tube Voltmeter.
≠ Measured From Pin 6 Of V15.
♦ Measured From Pin 8 Or V17.

## RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6BH6 | 27KΩ | 100Ω | 0Ω | .1Ω | †10KΩ | †33KΩ | 0Ω | | |
| V 2 | 6AG5 | 1 Meg. | 0Ω | 0Ω | .1Ω | †1.5KΩ | †82KΩ | 0Ω | | |
| V 3 | 6C4 | †7.5KΩ | Inf. | 0Ω | .1Ω | †7.5KΩ | 22KΩ | 470Ω | | |
| V 4 | 6AG5 | 23KΩ | 39Ω | .1Ω | 0Ω | †2KΩ | †2KΩ | 39Ω | | |
| V 5 | 6AG5 | 13KΩ | 39Ω | .1Ω | 0Ω | †2KΩ | †2KΩ | 39Ω | | |
| V 6 | 6AG5 | 5.6KΩ | 150Ω | .1Ω | 0Ω | †8.5KΩ | †2KΩ | 150Ω | | |
| V 7 | 6AL5 | 0Ω | 4 Meg. | 0Ω | .1Ω | 0Ω | 0Ω | 4.7KΩ | | |
| V 8 | 12AU7 | †4.5KΩ | ≠1 Meg. | 0Ω | .1Ω | .1Ω | †5.5KΩ | ≠1 Meg. | ≠47Ω | 0Ω |
| V 9 | 6BA6 | 0Ω | 0Ω | 0Ω | .1Ω | †2KΩ | †2KΩ | 82Ω | | |
| V 10 | 6AU6 | 470KΩ | 0Ω | 0Ω | .1Ω | †2KΩ | †23KΩ | 0Ω | | |
| V 11 | 6AL5 | 200KΩ | 100KΩ | .1Ω | 2Ω | 0Ω | 0Ω | 100KΩ | | |
| V 12 | 6AT6 | 0Ω | 0Ω | 0Ω | .1Ω | Inf. | 100KΩ | 0Ω | | |
| V 13 | 6SN7GT | ≠1 Meg. | †15KΩ | 0Ω | 4 Meg. | †350Ω | 7KΩ | .1Ω | 0Ω | |
| V 14 | 6SN7GT | ≠2 Meg. | ♦2.6Meg ♦1.4Meg | ≠0Ω | ≠2.2Meg | †2KΩ | ≠5.5KΩ ≠500Ω | .1Ω | 0Ω | |
| V 15 | 6SN7GT | ≠850KΩ | ♦150KΩ | ≠300KΩ | ≠200KΩ | ♦140KΩ | ≠0Ω | .1Ω | 0Ω | |
| V 16 | 6BG6G | Inf. | .1Ω | ≠82Ω | ≠100KΩ | ≠1 Meg | Inf. | 0Ω | †5KΩ | TOP CAP ♦ 220Ω |
| V 17 | 5V4G | Inf. | 100KΩ | 100KΩ | †60Ω | Inf. | †60Ω | Inf. | 100KΩ | |
| V 18 | 1B3GT | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | TOP CAP ♦ 600Ω |
| V 19 | 5U4G | Inf. | 4KΩ | Inf. | 700Ω | Inf. | 700Ω | Inf. | 4KΩ | |
| V 20 | 6BA6 | 2.5 Meg | 0Ω | 0Ω | .1Ω | ☁2.5KΩ | ☁56KΩ | 68Ω | | |
| V21A | 12AT7 | ☁2.5KΩ | 10KΩ | 4Ω | 0Ω | 0Ω | ☁2.5KΩ | 100KΩ | 1000Ω | .1Ω |
| ‡ V21B | 12AT7 | ☁2.5KΩ | 10KΩ | 4Ω | 0Ω | 0Ω | ☁2.5KΩ | 100KΩ | 1000Ω | .1Ω |
| V22 | 6BA6 | 4 Meg. | 0Ω | 0Ω | .1Ω | ☁2.5KΩ | ☁56KΩ | 68Ω | | |
| ‡ V23 | 6BA6 | .2Ω | 0Ω | 0Ω | .1Ω | ☁3.5KΩ | ☁40KΩ | 68Ω | | |
| ‡ V24 | 6AL5 | Inf. | Inf. | 0Ω | 2Ω | 7KΩ | 0Ω | 7KΩ | | |
| V25 | 6AV6 | 10 Meg. | 0Ω | 0Ω | .1Ω | 0Ω | 500KΩ | ☁270KΩ | | |
| V26 | 6AV6 | 10 Meg. | 0Ω | 0Ω | .1Ω | 0Ω | 0Ω | ☁270KΩ | | |
| V27 | 6K6GT | 8.2KΩ | .1Ω | ☁260Ω | ☁1.5KΩ | 470KΩ | 0Ω | 0Ω | 560Ω | |
| V28 | 6K6GT | ☁400KΩ | .1Ω | ☁230Ω | ☁1.5KΩ | 470KΩ | Inf. | 0Ω | 560Ω | |
| V29 | 5Y3GT | Inf. | 190KΩ | Inf. | 150Ω | Inf. | 140Ω | Inf. | 190KΩ | |
| V30 | 10BP4 | †1000Ω | †5KΩ | PIN 10 ♦56KΩ | PIN 11 †380Ω | PIN 12 †1000Ω | | | | |

‡ Taken In FM Position.
† Measured From Pin 8 Of V19.
≠ Measured From Pin 6 Of V15.
♦ Measured From Pin 8 Of V17.
☁ Measured From Pin 8 Of V29.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.




RADIO CHASSIS - TOP VIEW

CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: AIRLINE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | NOTES |
|---|---|---|---|---|---|
| V1 | RF Amp. | 6BH6 | 6BH6 | 7CM | |
| V2 | Mixer | 6AG5 | 6AG5 | 7BD | |
| V3 | Oscillator | 6C4 | 6C4 | 6BG | |
| V4 | 1st Video IF Amp | 6AG5 | 6AG5 | 7BD | |
| V5 | 2nd Video IF Amp | 6AG5 | 6AG5 | 7BD | |
| V6 | 3rd Video IF Amp | 6AG5 | 6AG5 | 7BD | |
| V7 | Video Det.-Sync. Clamper | 6AL5 | 6AL5 | 6BT | |
| V8 | Video Amp. | 12AU7 | 12AU7 | 9A | |
| V9 | 1st Sound IF Amp | 6BA6 | 6BA6 | 7BK | |
| V10 | Limiter | 6AU6 | 6AU6 | 7BK | |
| V11 | Disc. | 6AL5 | 6AL5 | 6BT | |
| V12 | Bias Clamper | 6AT6 | 6AT6 | 7BT | |
| V13 | Sync. Amp.-Sync. Sep. | 6SN7GT | 6SN7GT | 8BD | |
| V14 | Vert. Osc. and Disch.-Vert. Output. | 6SN7GT | 6SN7GT | 8BD | |
| V15 | Hor. AFC-Hor. Osc. | 6SN7GT | 6SN7GT | 8BD | |
| V16 | Hor. Output | 6BG6G | 6BG6G | 5BT | |
| V17 | Damper | 5V4G | 5V4G | 5L | |
| V18 | HV Rectifier | 1B3GT | 1B3GT | 3C | |
| V19 | LV Rectifier | 5U4G | 5U4G | 5T | |
| V20 | RF Amp. | 6BA6 | 6BA6 | 7BK | Model 94WG-3008A only. |
| V21 | Converter | 12AT7 | 12AT7 | 9A | " " " " |
| V22 | 1st IF Amp. | 6BA6 | 6BA6 | 7BK | " " " " |
| V23 | 2nd FM IF Amp. | 6BA6 | 6BA6 | 7BK | " " " " |
| V24 | Ratio Det. | 6AL5 | 6AL5 | 6BT | " " " " |
| V25 | DET.-AVC-AF Amp. | 6AV6 | 6AV6 | 7BT | " " " " |
| V26 | Phase Inverter | 6AV6 | 6AV6 | 7BT | " " " " |
| V27 | Power Output | 6K6GT | 6K6GT | 7S | |
| V28 | Power Output | 6K6GT | 6K6GT | 7S | Model 94WG-3008A only. |
| V29 | Rectifier | 5Y3GT | 5Y3GT | 5T | " " " " |
| V30 | Picture Tube | 10BP4 | 10BP4 | 12D | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: AIRLINE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1A | 40 | 450 | 45X367 | AFH8J2H | UP7BJ920 | | TVL-69 | ◓ Filter |
| B | 10 | 350 | | | | | | ▲ Vert. Output Plate Dec. |
| C2A | 40 | 450 | 45X370 | AFH8J8D26B | UP9CJ887 | | TVL-57 | ◓ Filter |
| B | 40 | 150 | | | | | | ■ Filter |
| C | 130 | 50 | | | | | | ▲ Vert. Output Cath. Byp. |
| C3A | 80 | 450 | 45X369 | AFH162J | UP9BJ857 | | TVL-47 | ◓ Filter |
| B | 10 | 450 | | | | | | ▲ Vert. Osc. Plate Dec. |
| C4A | 250 | 10 | 45X368 | AF50R200S | UP7BJ808 | | TVL-66 | ◓ Hor. Cent. Cont. Byp. |
| B | 1000 | 6 | | | | | | ▲ Vert. Cent. Cont. Byp. |
| C5A | 30 | 400 | 45X371 | AFH2J6I6G | UP8CJ898 | | TVL-56 | ■ Filter |
| B | 30 | 300 | | | | | | ▲ Filter |
| C | 10 | 450 | | | | | | ◓ Decoupling |
| C6A | 40 | 450 | 45X374 | AFH88J8A | UP9CJ1100 | | TVL-54 | ◓ Filter |
| B | 40 | 450 | | | | | | ■ Filter |
| C | 40 | 25 | | | | | | ▲ Output Cath. Bypass |
| C7 | 5 | 100 | 47X361 | PRS150/4 | BR415 | | UT-41 | Stabilizing Cap. |
| C8 | 24 | 300 | 45X372 | PRS350/24 | BR3045 | | UT-203 | Output Decoupling ♦ |
| C9 | 500 | | 47X496 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | Ant. Coupling |
| C10 | 500 | | 47X496 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | " " |
| C11 | 680 | | 47X554 | | | GP2K-750 | | RF Coupling |
| C12 | 680 | | 47X554 | | | GP2K-750 | | RF Cathode Bypass |
| C13 | 680 | | 47X554 | | | GP2K-750 | | Bias Filter |
| C14 | 680 | | 47X554 | | | GP2K-750 | | RF Screen Bypass |
| C15 | 680 | | 47X554 | | | GP2K-750 | | RF Bypass |
| C16 | 50 | | 47X517 | | | GP1K-50 | | RF Coupling |
| C17 | .68 | | | | | | | " " |
| C18 | .47 | | | | | | | " " |
| C19 | 1.5 | | | | | NPOK-1.5 | | " " |
| C20 | 25 | | 47X487 | | | GP1K-25 | | " " |
| C21 | 5000 | | 47X507 | | | | | Mixer Screen Bypass |
| C22 | 1500 | | 47X545 | | | GP2L-001 | | Mixer Plate Dec. |
| C23 | 68 | 500 | | | | | | Fixed Trimmer |
| C24 | 1.5 | | | | | NPOK-1.5 | | Osc. Coupling |
| C25 | 680 | | 47X554 | | | | | Osc. Feedback |
| C26 | 3 | | 47X556 | | | NPOK-3 | | " " |
| C27 | 680 | | 47X554 | | | GP2K-750 | | Osc. Fil. Bypass |
| C28 | 680 | | 47X554 | | | GP2K-750 | | RF Bypass |
| C29 | 270 | 1000 | 47X534 | 1468-00025 | 5W5T25 | GP2K-250 | 1FM-325 | IF Coupling |
| C30 | 1500 | | 47X545 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | Bias Filter |
| C31 | .25 | 400 | D65254 | P488-25 | GT4P25 | | TC-2 | " " |
| C32 | 1500 | | 47X545 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | 1st V. IF Decoupling |
| C33 | 270 | 500 | 47X534 | 1468-00025 | 5W5T25 | GP2K-250 | 1FM-325 | IF Coupling |
| C34 | 1500 | | 47X545 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | Bias Filter |
| C35 | 1500 | | 47X545 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | 2nd V. IF Decoupling |
| C36 | 51 | | | 1469-00005 | 5R5Q5 | NPOM-50 | MS-45 | Fixed Trimmer |
| C37 | 270 | 500 | 47X534 | 1468-00025 | 5W5T25 | GP2K-250 | 1FM-325 | IF Coupling |
| C38 | 75 | | | 1469-000075 | | NPOM-75 | | Fixed Trimmer |
| C39 | 100 | | 47X546 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | 3rd V. IF Cath. Byp. |
| C40 | 1500 | | 47X545 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | 3rd V. IF Decoupling |
| C41 | 270 | 500 | 47X534 | 1468-00025 | 5W5T25 | GP2K-250 | 1FM-325 | IF Coupling |
| C42 | 10 | 500 | 47X542 | 1468-00001 | 5W5Q1 | GP1K-10 | MS-41 | V. Diode Filter |
| C43 | .05 | 400 | D67503 | P488-05 | GT4S5 | | TM-15 | Video Coupling |
| C44 | .05 | 400 | D67503 | P488-05 | GT4S5 | | TM-15 | " " |
| C45 | .25 | 400 | D65254 | P488-25 | GT4P25 | | TC-2 | Pic. Tube Cath. Dec. |
| C46 | 1500 | | 47X545 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | 1st S. IF Cath. Bypass |
| C47 | 1500 | | 47X545 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | 1st S. IF Decoupling |
| C48 | .01 | 400 | D67103 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Limiter Grid Filter |
| C49 | 1500 | | 47X545 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | Limiter Screen Byp. |
| C50 | 1500 | | 47X545 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | Limiter Plate Dec. |
| C51 | 270 | 1000 | 47X534 | 1468-00025 | 5W5T25 | GP2K-250 | 1FM-325 | RF Bypass |
| C52 | .05 | 400 | D67503 | P488-05 | GT4S5 | | TM-15 | Video Coupling |
| C53 | 100 | 500 | 47X544 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | Sync. Coupling |
| C54 | 390 | 1000 | 47X535 | 1469-0004 | 5R5T4 | | MS-34 | Sync. Amp. Cath. Byp. |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CAPACITORS (CONT.)

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA AIRLINE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C55 | .002 | 600 | F66202 | P688-002 | GT6D2 | GP2M-002 | TM-22 | Integrator Net. |
| C56 | .005 | 400 | D65502 | P688-005 | GT6D5 | GP2M-005 | TM-25 | " " |
| C57 | .005 | 400 | D65502 | P688-005 | GT6D5 | GP2M-005 | TM-25 | " " |
| C58 | 470 | 500 | 47X543 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | Vert. Osc. Grid Cap. |
| C59 | .1 | 1000 | 46X409 | 1084-1 | GT6P1 | | TM-1 | Vert. Discharge |
| C60 | .02 | 400 | D65254 | P488-25 | GT4P25 | | TC-2 | Vert. Sweep Coupling |
| C61 | .02 | 500 | 47X552 | | | | | Hor. Sync. Coupling |
| C62 | .02 | 400 | 47X552 | | | | | Voltage Divider |
| C63 | .002 | 600 | F66202 | P688-002 | GT6D2 | GP2M-002 | TM-22 | Hor. Sync. Coupling |
| C64 | .02 | 400 | D65254 | P488-25 | GT4P25 | | TC-2 | AFC Filter |
| C65 | .02 | 400 | D65203 | P488-02 | GT4S2 | | TM-12 | " " |
| C66 | .02 | 400 | D67503 | P488-05 | GT4S5 | | TM-15 | AFC Plate Bypass |
| C67 | .1 | 1000 | 46X409 | | | | | Hor. Osc. Grid Cap. |
| C68 | .02 | 1000 | 47X552 | | | | | Hor. Discharge |
| C69 | .1 | 1000 | 47X531 | | | | | Hor. Sweep Coupling |
| C70 | 1 | 1000 | 47X535 | 1469-0004 | 5R5T4 | | MS-34 | Hor. Sweep Coupling |
| C71 | 1 | 500 | 47X541 | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | Voltage Divider |
| C72 | .02 | 400 | D65254 | P488-25 | GT4P25 | | TC-2 | Hor. Output Cath. Byp. |
| C73 | .05 | 400 | F67503 | P688-05 | GT6S5 | | TM-15 | Hor. Output Screen Byp. |
| C74 | .005 | 1000 | 46X406 | | | | | Damper Filter |
| C75 | .1 | 1000 | 46X409 | 1084-1 | | | | " " |
| C76 | 8 | 1000 | 47X552 | | | | | AFC Feedback |
| C77 | .05 | 10000 | 47X530 | | | 410-500 | | HV Filter |
| C78 | .1 | 400 | 46X410 | P488-01 | GT4S1 | | TM-11 | Line Filter |
| C79 | .1 | 400 | 46X410 | P488-01 | GT4S1 | | TM-11 | " " |
| C80 | .005 | | | 1468-001 | 1W5D1 | GP2L-001 | 1FM-21 | Voltage Divider † |
| C81 | 40 | | 47X472 | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | Ant. Coupling |
| C82 | 100 | | 47X550 | 1469-0001 | 5R5T1 | N750L-100 | MS-31 | Fixed Trimmer |
| C83 | 8 | 1500 | 47X553 | 1468-000005 | 5W5V5 | NPOK-5 | MS-55 | RF Coupling |
| C84 | 10 | | 47X552 | | | GP1K-15 | MS-415 | Fixed Trimmer |
| C85 | 500 | | 47X496 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | RF Coupling |
| C86 | 500 | | 47X496 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | AVC Filter |
| C87 | 500 | | 47X496 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | RF Cath. Bypass |
| C88 | 20 | | 47X507 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | RF Screen Bypass |
| C89 | 500 | | 47X507 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | RF Plate Decoupling |
| C90 | 100 | | 47X550 | 1469-0001 | 5R5T1 | N750L-100 | MS-31 | Fixed Trimmer |
| C91 | 15 | | 47X552 | | | GP1K-15 | MS-415 | " " |
| C92 | 100 | | 47X550 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | RF Coupling |
| C93 | 500 | | 47X496 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | " " |
| C94 | 500 | | 47X621 | 1468-00005 | 5W5Q7 | GP1K-75 | 1FM-475 | " " |
| C95 | 500 | | 47X499 | 1469-00005 | 5R5Q5 | NPOM-50 | MS-45 | Fixed Trimmer |
| C96 | 25 | | 47X545 | 1469-000005 | 5REV5 | NPOK-5 | MS-55 | " " |
| C97 | 25 | | 47X516 | | | | | " " * |
| C98 | 500 | | 47X498 | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | Osc. Grid Cap. |
| C99 | 500 | | 47X507 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | Mixer Cath. Bypass |
| C100 | 500 | | 47X507 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | Mixer Decoupling |
| C101 | 20 | | F66202 | P688-02 | GT6D2 | | TM-14 | Mixer Decoupling |
| C102 | .1 | | 46X406 | 1469-005 | 5R5T5 | GP2K-500 | 1FM-35 | Filament Bypass |
| C103 | .1 | | 47X550 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | IF Coupling |
| C104 | .1 | 200 | B66503 | P288-05 | GT2S5 | | TM-15 | AVC Filter |
| C105 | .1 | | 47X496 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | 1st IF Cath. Bypass |
| C106 | .02 | 600 | F66203 | P688-02 | GT6S2 | | TM-12 | 1st IF Screen Bypass |
| C107 | .02 | 600 | F66202 | P488-02 | GT6S2 | | TM-12 | 1st IF Plate Dec. |
| C108 | .02 | | 47X501 | 1468-000075 | 5W5Q7 | GP1K-75 | 1FM-475 | Diode RF Filter |
| C109 | 5 | | 47X112 | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | " " " |
| C110 | 5 | | | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | " " " |
| C111 | .1 | | 47X507 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | 2nd IF Cath. Bypass |
| C112 | .1 | | 47X507 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | 2nd IF Screen Bypass |
| C113 | .1 | | 47X507 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | 2nd IF Plate Dec. |
| C114 | .1 | | 47X501 | 1468-000075 | 5W5Q7 | GP1K-75 | 1FM-475 | Diode Load Cap. |
| C115 | .1 | | 47X501 | 1468-000075 | 5W5Q7 | GP1K-75 | 1FM-475 | " " " |
| C116 | .05 | 500 | 47X492 | 1467-0025 | 1W5D25 | GP2M-0025 | 1FM-225 | De-emphasis |
| C117 | .02 | 600 | F66103 | P688-01 | GT6S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C118 | .1 | 100 | 46X362 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C119 | .05 | | 47X507 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | AVC Filter |
| C120 | 50 | | 47X501 | 1468-000075 | 5W5Q7 | GP1K-75 | 1FM-475 | Tone Comp. |
| C121 | 500 | 500 | 47X516 | 1468-00025 | 5W5Q2 | NPOK-20 | MS-42 | RF Bypass |
| C122 | .02 | 200 | B66203 | P488-02 | GT2S2 | | TM-12 | Tone Comp. |
| C123 | .006 | 600 | F66602 | P688-006 | GT6D6 | | TM-26 | " " |
| C124 | .1 | 600 | F66103 | P688-01 | GT6S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C125 | .02 | 500 | 47X468 | 1468-00025 | 5W5T25 | GP2K-250 | 1FM-325 | AF Plate Bypass |
| C126 | .05 | 600 | F66203 | P688-02 | GT6S2 | | TM-12 | Audio Coupling |
| C127 | .005 | 600 | B65502 | P688-005 | GT6D5 | GP2M-005 | TM-25 | " " |
| C128 | .02 | 600 | F66203 | P688-02 | GT6S2 | | TM-12 | " " |
| C129 | .001 | 600 | F66102 | P688-001 | GT6D1 | GP2L-001 | TM-21 | Output Plate Bypass |
| C130 | .001 | 600 | F66102 | P688-001 | GT6D1 | GP2L-001 | TM-21 | " " " |
| C131 | .02 | 400 | D64252 | P688-0022 | GT6D2 | GP2M-0025 | TM-23 | Audio Coupling ♦ |
| C132 | .01 | 400 | D67103 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | " " ♦ |
| C133 | .02 | 400 | D64252 | P688-0022 | GT6D2 | GP2M-0025 | TM-22 | AF Plate Bypass ♦ |
| C134 | .1 | 400 | D67103 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Audio Coupling ♦ |
| C135 | .005 | 600 | F65502 | P688-005 | GT6D5 | GP2M-005 | TM-25 | Output Plate Bypass ♦ |

* Some models use 20MMF in this application.
† Not used in all models.
♦ Used only in model 94WG-3006A, and 94WG-3009A.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA AIRLINE PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| R1A | 5000Ω | ½ | 36X380 | W12-133X | AT-78 | Volume control, tapped ⓐ 100K |
| B | Shaft | | Not Req. | Not. Req. | KSS-3 | Attach to R1A Per Instructions |
| C | Switch | | Not Req. | 76-1 | SW-A | " " " |
| R1A | 1 Meg. | ½ | 36X376 | | | Volume control and switch * |
| R2A | 3 Meg. | ½ | 40X286 | Q13-140 | AM-67-2 | Tone control |
| B | Shaft | | Not Req. | Not Req. | KSS-3 | Attach to R2A Per Instructions |
| R3A | 50KΩ | ½ | 78X2 | | | Horiz. hold control (Dual Concentric) |
| B | 1 Meg. | ½ | | | | Vert. Hold control (Dual Concentric) |
| R4A | 500KΩ | ½ | 78X1 | | | Brightness control (Dual Concentric) |
| B | 10KΩ | ½ | | | | Contrast control |
| R5 | 500Ω | ½ | 77X4 | Q11-114 | M-19-S | Vert. linearity control |
| R6 | 2.5Meg. | ½ | 77X3 | Q11-239 | | Height control |
| R7 | 20Ω | 2 | 77X2 | W-20X10 | 5a-20CT | Vert. centering control, tapped ⓐ 10Ω Wire Wound |
| R8 | 20Ω | 2 | 77X5 | W-20 | 5a-20 | Horiz. centering control, wire wound |
| R5 | 22500Ω | 4 | 77X1 | | 5a-2500 | Focus control |

* Used in model 94WG-3006A and 94WG-3009A only.

## RESISTORS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA AIRLINE PART No. | IRC PART No. | IDENTIFICATION CODES ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED. |
|---|---|---|---|---|---|
| R10 | 100Ω | ½ | B65102 | | Ant. Shunt 20% |
| R11 | 100Ω | ½ | B65102 | | Ant. Shunt 20% |
| R12 | 22KΩ | ½ | B65223 | | RF Grid 20% |
| R13 | 33KΩ | ½ | B63333 | | RF Screen 20% |
| R14 | 10KΩ | ½ | C65103 | | RF Plate |
| R15 | 100Ω | 1 | B65101 | | RF Cathode 20% |
| R16 | 470Ω | ½ | B65472 | | Mixer Coil Shunt 20% |
| R17 | 1 Meg. | ½ | B65105 | | Mixer Grid 20% |
| R18 | 82KΩ | ½ | B65823 | | Mixer Screen 20% |
| R19 | 68000Ω | 1 | C65682 | | Osc. Plate 20% |
| R20 | 22KΩ | ½ | B65223 | | Osc. Grid 20% |
| R21 | 470Ω | ½ | B65471 | | Osc. Cathode 20% |
| R22 | 1000Ω | ½ | B65102 | | Mixer Plate Decoupling 20% |
| R23 | 15KΩ | ½ | B63153 | | 1st Video IF Grid 5% |
| R24 | 39Ω | ½ | 32B4390 | | 1st Video IF Cathode |
| R25 | 1000Ω | ½ | 32B5102 | | 1st Video IF Decoupling |
| R26 | 6.8 Meg. | ½ | 32B4685 | BTS-6.8 Meg. | Voltage Divider |
| R27 | 82KΩ | ½ | 32B4823 | BTS-82K | Voltage Divider |
| R28 | 10KΩ | ½ | 32B4103 | BTS-10K | Bias Network |
| R29 | 12KΩ | ½ | 32B4123 | BTS-12K | Bias Network |
| R30 | 1000Ω | ½ | 32B5102 | BTS-1000 | Bias Network |
| R31 | 560Ω | ½ | 32B3562 | | 2nd Video IF Grid 5% |
| R32 | 3Ω | ½ | 32B4360 | | 2nd Video IF Cathode |
| R33 | 1000Ω | ½ | 32B5102 | | 2nd Video IF Decoupling |
| R34 | 1000Ω | ½ | 32B5102 | BTS-1000 | Voltage Divider |
| R35 | 560Ω | ½ | 32B3562 | | 3rd Video IF Grid 5% |
| R36 | 15Ω | ½ | 32B4151 | | 3rd Video IF Cathode |
| R37 | 68000Ω | ½ | 32B3682 | | 3rd Video IF Screen 20% |
| R38 | 1000Ω | ½ | 32B5102 | | 3rd Video IF Decoupling |
| R39 | 470Ω | ½ | 32B4472 | BTS-4700-5% | Video Det. Diode Load 5% |
| R40 | 3300Ω | ½ | 32B4332 | BTS-3300-5% | Video Det. Diode Load 5% |
| R41 | 1 Meg. | ½ | 32B5105 | BTS-1 Meg. | Video Amp. Grid 20% |
| R42 | 3300Ω | ½ | 32B4332 | BTS-3300 | Video Amp. Plate |
| R43 | 1 Meg. | ½ | 32B5105 | BTS-1 Meg. | Video Output Grid |
| R44 | 47Ω | ½ | 32B5470 | BW-½-47 | Video Output Cathode 20% |
| R45 | 3300Ω | 1 | 32C4332 | BTA-3300 | Video Output Plate |
| R46 | 1000Ω | ½ | 32B5102 | BTS-1000 | Video Output Plate |
| R47 | 100KΩ | ½ | 32B5104 | BTS-100K | Voltage Divider |
| R48 | 62Ω | ½ | 32B4620 | | 1st Sound IF Cathode |
| R49 | 1220Ω | ½ | 32B4122 | | 1st Sound IF Decoupling |
| R50 | 470KΩ | ½ | 32B5474 | | 2nd Sound IF Grid 20% |
| R51 | 22KΩ | ½ | 32B5223 | | 2nd Sound IF Screen Decoupling 20% |
| R52 | 1000Ω | ½ | 32B5102 | | 2nd Sound IF Plate Decoupling |
| R53 | 100KΩ | ½ | 32B3104 | BTS-100K-5% | Disc. Diode Load 5% |
| R54 | 100KΩ | ½ | 32B3104 | BTS-100K-5% | De-emphasis 5% |
| R55 | 5.1Ω | 1 | 43X239 | BW-1-4.7 | Disc. Filament (Wire Wound) |
| R56 | 10 Meg. | ½ | 32B5106 | BTS-10 Meg. | AF Grid See Note |
| R57 | 330KΩ | ½ | 32B4334 | BTS-330K | AF Plate See Note |
| R58 | 470KΩ | ½ | 32B5474 | BTS-470K | Output Grid See Note |
| R59 | 100Ω | 1 | 32C5102 | BW-1-1000 | Filter See Note |
| R60 | 15KΩ | 1 | 32C5153 | BTA-15K | Sync. Amp. Plate |
| R61 | 1 Meg. | ½ | 32B5105 | BTS-1 Meg. | Sync. Amp. Grid |
| R62 | 3.9 Meg. | ½ | 32B4395 | BTS-3.9 Meg. | Sync. Sep. Grid |
| R63 | 68000Ω | ½ | 32B3682 | BTS-6800-5% | Sync. Sep. Cathode 5% |
| R64 | 22KΩ | ½ | 32B4223 | BTS-22K | Integrator 20% |
| R65 | 82000Ω | ½ | 32B4822 | BTS-8200 | " |
| R66 | 82000Ω | ½ | 32B4822 | BTS-8200 | " |
| R67 | 1.5 Meg. | ½ | 32B4155 | BTS-1.5 Meg. | Voltage Divider |
| R68 | 6.8 Meg. | ½ | 32B5685 | BTS-6.8 Meg. | " " 20% |
| R69 | 100KΩ | ½ | 32B4104 | BTS-100K | " " |
| R70 | 1 Meg. | ½ | 32B3105 | BTS-1 Meg-5% | Vert. Osc. Grid 5% |
| R71 | 560Ω | ½ | 32B4561 | BTS-560 | Vert. Output Cathode |
| R72 | 2.2 Meg. | ½ | 32B5225 | BTS-2.2 Meg. | Vert. Output Grid |
| R73 | 3900Ω | ½ | 32B4392 | BTS-3900 | Vert. Peaking |
| R74 | 1000Ω | ½ | 32B5102 | BTS-1000 | Filter 20% |
| R75 | 560KΩ | ½ | 32B5564 | BTS-560K-5% | Horiz. AFC Grid 5% |
| R76 | 180KΩ | ½ | 32B4184 | BTS-180K | Horiz. AFC Cathode |
| R77 | 100KΩ | 1 | 32C3104 | BTA-100K-5% | " " " 5% |
| R78 | 100KΩ | ½ | 31B1104 | BTS-100K | Horiz. Osc. Grid |
| R79 | 8200Ω | ½ | 32B4822 | BTS-8200 | Horiz. AFC Filter Network |
| R80 | 150KΩ | ½ | 32B4154 | BTS-150K | " " " |
| R81 | 30KΩ | ½ | 34A1 | | Voltage Divider Temp. Comp. |
| R82 | 120KΩ | ½ | 32B4124 | BTS-120K | " " |
| R83 | 270KΩ | 1 | 32C4274 | BTA-270K | " " |
| R84 | 10KΩ | ½ | 32B4103 | BTS-10K | Horiz. Osc. Transformer Shunt |
| R85 | 120KΩ | 1 | 32C4124 | BTA-120K | Horiz. Osc. Plate |
| R86 | 47Ω | ½ | 32B5470 | | Parasitic Supp. 20% |
| R87 | 1 Meg. | ½ | 32B5105 | BTS-1 Meg. | Horiz. Output Grid |
| R88 | 82Ω | 1 | 32C4820 | BW-1-82 | Horiz. Output Cathode |
| R89 | 4700Ω | 1 | 32C4472 | BTA-4700 | Horiz. Output Screen |
| R90 | 10KΩ | ½ | 32B4103 | BTS-10K | Filter |
| R91 | 560KΩ | ½ | 32B4564 | BTS-560K | Feedback |
| R92 | 56KΩ | ½ | 32B4563 | BTS-56K | Filter |
| R93 | 3.3Ω | ½ | 43X238 | | HV Filament (Wire Wound) |
| R94 | 1 Meg. | 1 | 32C5105 | | HV Filter |
| R95 | 680Ω | 1 | 32C5681 | BTA-680 | Focus Coil Shunt |
| R96 | 690Ω | 1 | 32C5681 | BTA-680 | " " " |
| R97A | 700Ω | 20 | 43X244 | DG-700 | Filter (Wire Wound) |
| B | 510Ω | 20 | | DG-500 | Bias Network (Wire Wound) |
| R97A | 11252Ω | 20 | 43X234 | | Filter Wire Wound See Note |
| B | 6102Ω | 20 | | | Bias Network (Wire Wound) See Note |
| R98A | 28300Ω | 1 | 43X243 | | Bleeder (Wire Wound) |
| B | 302Ω | .8 | | BW-1-33 | Voltage Divider (Wire Wound) |
| C | 85Ω | 2 | | BW-2-82 | Bias Network (Wire Wound) |
| R98A | 82000Ω | 5 | 43X235 | AB-8000 | Bleeder (Wire Wound) See Note |
| B | 35Ω | .8 | | BW-1-33 | Voltage Divider (Wire Wound) See Note |
| C | 100Ω | 2 | | BW-2-100 | Bias Network (Wire Wound) See Note |
| R99 | 39Ω | 1 | 32C4390 | BW-1-39 | Bias Network |
| R100 | 1 Meg. | ½ | B65105 | BTS-1 Meg. | RF Grid 20% |
| R101 | 68Ω | ½ | B63680 | BW-½-68 | RF Cathode |
| R102 | 56KΩ | ½ | B64563 | BTS-56K | RF Screen |
| R103 | 10000Ω | ½ | B64102 | BTS-1000 | RF Plate Decoupling |
| R104 | 100KΩ | ½ | B65104 | BTS-100K | Conv. Grid 20% |
| R105 | 10000Ω | ½ | B64102 | BTS-1000 | Conv. Plate Decoupling |
| R106 | 10000Ω | ½ | B64102 | BTS-1000 | Conv. Cathode |
| R107 | 33000Ω | ½ | B64332 | BTS-3300 | FM RF Coil Shunt |
| R108 | 10KΩ | ½ | B64103 | BTS-10K | Osc. Grid |

## RESISTORS (CONT.)

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA AIRLINE PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R109 | 2.2 Meg. | ½ | B65225 | BTS-2.2 Meg. | 1st IF Grid 20% |
| R110 | 68Ω | ½ | B63680 | BW-½-68 | 1st IF Cathode |
| R111 | 56KΩ | ½ | B64563 | BTS-56K | 1st IF Screen |
| R112 | 91KΩ | ½ | B64913 | BTS-100K-5% | 1st IF Transformer Shunt 5% |
| R113 | 1000Ω | ½ | B64102 | BTS-1000 | 1st IF Plate Decoupling |
| R114 | 1 Meg. | ½ | B65105 | BTS-1 Meg. | AVC Network 20% |
| R115 | 470KΩ | ½ | B65474 | BTS-470K | Diode Load 20% |
| R116 | 47KΩ | ½ | B65473 | BTS-47K | Diode Filter 20% |
| R117 | 68Ω | ½ | B63680 | BW-½-68 | 2nd FM IF Cathode |
| R118 | 39KΩ | 1 | C64393 | BTA-39K | 2nd FM IF Screen |
| R119 | 2200Ω | ½ | B65222 | BTS-2200 | 2nd FM IF Plate Decoupling 20% |
| R120 | 27KΩ | ½ | B64273 | BTS-27K | De-emphasis |
| R121 | 6800Ω | ½ | B63682 | BTS-6800-5% | Ratio Det. Diode Load 5% |
| R122 | 6800Ω | ½ | B63682 | BTS-6800-5% | Ratio Det. Diode Load 5% |
| R123 | 3.6Ω | ½ | 43X233 | BW-½-3.9 | Disc. Filament (Wire Wound) |
| R124 | 1 Meg. | ½ | B65105 | BTS-1 Meg. | AVC Network 20% |
| R125 | 470KΩ | ½ | B65474 | BTS-470K | Tone Compensation 20% |
| R126 | 15KΩ | ½ | B65153 | BTS-15K | " " 20% |
| R127 | 10 Meg. | ½ | B65106 | BTS-10 Meg. | AF Grid 20% |
| R128 | 270KΩ | ½ | B65274 | BTS-270K | AF Plate 20% |
| R129 | 10 Meg. | ½ | B65106 | BTS-10 Meg. | Phase Inv. Grid 20% |
| R130 | 270KΩ | ½ | B65274 | BTS-270K | Phase Inv. Plate 20% |
| R131 | 47MΩ | ½ | B65474 | BTS-470K | Output Grid 20% |
| R132 | 8200Ω | ½ | B64822 | BTS-8200 | Output Grid |
| R133 | 470KΩ | ½ | B65474 | BTS-470K | Output Grid 20% |
| R134 | 560Ω | 2 | D63561 | BT-2-560 | Output Cathode |
| R135 | 1400Ω | 5 | 43X242 | AB-1450 | Filter (Wire Wound) |
| R136 | 3.3 Meg. | 1 | 32C3335 | BTA-3.3Meg-5% | Voltage Divider |

Note-- Used in model 94WG-3006A and 94WG-3009A only.

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | RATING SEC. 3 | REPLACEMENT DATA AIRLINE PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. |
|---|---|---|---|---|---|---|---|---|
| T1 | 117VAC ⓐ 1.8A | 730VCT .25ADC ⓐ 5.5A | 5VAC ⓐ 3A SEC. 4 6.3VAC ⓐ 5.5A | 5VAC ⓐ 2A SEC. 5 6.3VAC ⓐ .6A | 53X297 | P-8153 | TP-355 | P-3083 |
| T2 | 117VAC ⓐ .78A | 760VCT .105ADC | 5VAC ⓐ 2A | 6.3VAC ⓐ 3.1A | 53X286†† | P-6014 # | PH-120B | P-2954 # |

# Drill new mounting holes.
†† Used in model 94WG-3008A only.

## TRANSFORMER (SWEEP CIRCUITS)

| ITEM No. | RATING DC RESISTANCE PRI. | RATING DC RESISTANCE SEC. | REPLACEMENT DATA AIRLINE PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| T3 | 150Ω Tap ⓐ 41Ω | | 6A1984 | | | | Hor.Osc.Transformer |
| T4 | 165Ω | 13Ω | 54X4 | A-8121 | TSO-1 | A-4000 | Vert.Block Osc. Trans |
| T5 | 430Ω Tap ⓐ 180Ω | SEC. 1 10.6Ω Tap ⓐ .6Ω SEC. 2 0Ω | 53X296 | A-8117 | TFB-2 | | Hor.Output Trans. |
| T6 | 590Ω | 7Ω | 51X140 | A-8115 | TSO-1 | A-3035 | Vert. Output Trans. |
| T7A | 14Ω | | 9A1987 | DY-1 | | | Hor. Deflection Coil |
| B | 6Ω | | | | | | Vert.Deflection Coil |
| T8 | 3Ω | | 9A1974 | FC-10 | | | Focus Coil |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | RATING IMPEDANCE PRI. | RATING IMPEDANCE SEC. | RATING DC RES. PRI. | RATING DC RES. SEC. | REPLACEMENT DATA AIRLINE PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T9A | 10KΩ CT | 3.2Ω | 480Ω CT | .5Ω | 51X142 ‡‡ | A-3823 | RO-110 | A-2936 | ‡‡ Used in model 94WG-3008A |
| B | | | | | 51X139†† | | | | †† Used in model 94WG-3006A and 94WG-3009A. |

## SPEAKER

| ITEM No. | RATINGS | REPLACEMENT DATA AIRLINE PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|
| SP1 | FIELD PM 3.22 V. C. 1 1/4" CONE DIA. | 12A490 | ST-102 ‡ MOD.P12-S | 12A6A | ‡ Replace output transformer to match 6-8Ω voice coil. |
| SP2 | 11 1/2" | | | | |

## FILTER CHOKE

| ITEM No. | RATINGS TOTAL DIRECT CURRENT | RATINGS D.C. RESISTANCE | RATINGS INDUCTANCE (0 CURRENT 1000 v^) | REPLACEMENT DATA AIRLINE PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| L1 | .250A | 62Ω | 2.2Henries | 52X87 | C-2326 | TR-4200 | C-2991 | |

AIRLINE MODELS 94WG-3006A, 94WG-3008A, 94WG-3009A

# PARTS LIST AND DESCRIPTIONS (Continued)

## COILS (RF-IF)

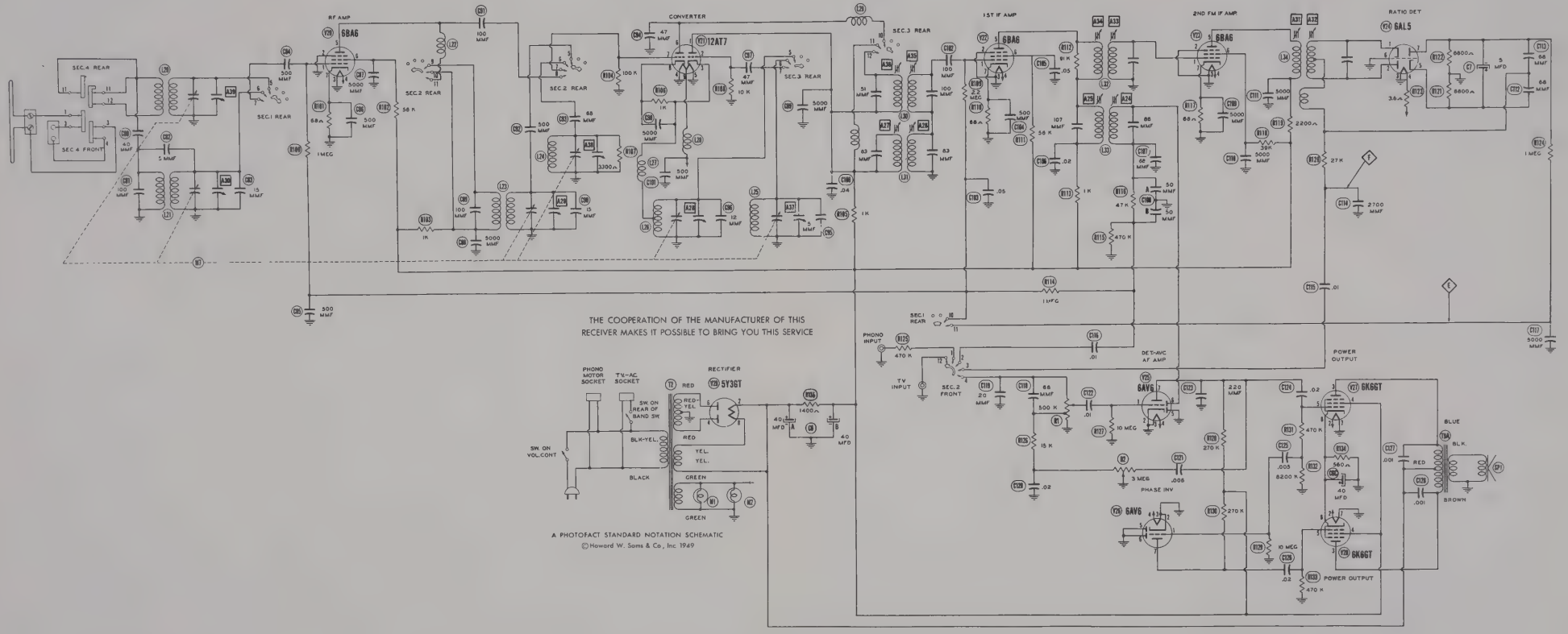
| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | AIRLINE PART No. | MEISSNER PART No. | |
| L2 | Ant. Input | 0Ω | | | | Part of Tuner |
| L3 | Ant. Input | 0Ω | | | | High Band Part of Tuner |
| L4 | Ant. Input | 0Ω | | | | High Band Part of Tuner |
| L5 | Fil. Choke | 0Ω | | | | Part of Tuner |
| L6 | 1st Video IF | 0Ω | 0Ω | 9A2032 | | |
| L7 | 2nd Video IF | .1Ω | | 9A1980 | | |
| L8 | 3rd Video IF | .1Ω | 0Ω | 9A1982 | | |
| L9 | Sound Trap | 0Ω | 0Ω | 9A1985 | | |
| L10 | 4th Video IF | .1Ω | | 9A1980 | | |
| L11 | Peaking | 3Ω | | 9A1979 | | 36 Microhenries |
| L12 | Peaking | 8Ω | | 9A1977 | | 180 Microhenries wound on 39KΩ resistor. |
| L13 | Peaking | 6Ω | | 9A1978 | | 120 microhenries wound on 22KΩ resistor. |
| L14 | Peaking | 3Ω | | 9A1979 | | 36 Microhenries |
| L15 | Peaking | 6Ω | | 9A1978 | | 120 Microhenries wound on 22KΩ resistor. |
| L16 | Sound IF | 0Ω | 0Ω | 9A1986 | | |
| L17 | Disc. Trans. | 0Ω | 0Ω | 9A1983 | | |
| L18 | Width Control | .2Ω | | 9A1976 | | |
| L19 | Hor. Linearity | 36Ω | | 9A1981 | | |
| L20 | FM Ant. | 0Ω | | 9A2027 | | Used in model 94WG-3008A only |
| L21 | AM Ant. | 29Ω | 4Ω | 9A2026 | | " " " " " " |
| L22 | RF Choke | 2.5Ω | | 35A5 | | Used in model 94WG-3008A only. |
| L23 | AM RF | 29Ω | 4Ω | 9A2025 | | Used in model 94WG-3008A only. |
| L24 | FM RF | 0Ω | | 9A2024 | | Used in model 94WG-3008A only. |
| L25 | FM Osc. | 0Ω | | 9A2023 | | " " " " " |
| L26 | AM Osc. | 5Ω | | 9A2022 | | " " " " " |
| L27 | Cathode Chk. | 2.5Ω | | 35A5 | | " " " " " |
| L28 | Fil. Chk. | .5Ω | | 9A1881 | | " " " " " |
| L29 | RF Choke | .4Ω | | 35A7 | | " " " " " |
| L30 | 1st FM IF | .2Ω | .2Ω | 9A2034 | | " " " " " |
| L31 | 1st AM IF | 18Ω | 18Ω | 9A2029 | 16-6678 | Used in model 94WG-3008A only tertiary winding 8Ω |
| L32 | 2nd FM IF | 2Ω | .6Ω | 9A2030 | | Used in model 94WG-3008A only. |
| L33 | 2nd AM IF | 19Ω | 19Ω | 9A1963 | 16-6678 | " " " " " |
| L34 | Ratio Det. Trans. | 2.7Ω | .2Ω | 9A1970 | | " " " " " |
| L35 | Fil. Choke | 0Ω | | 9A2033 | | |

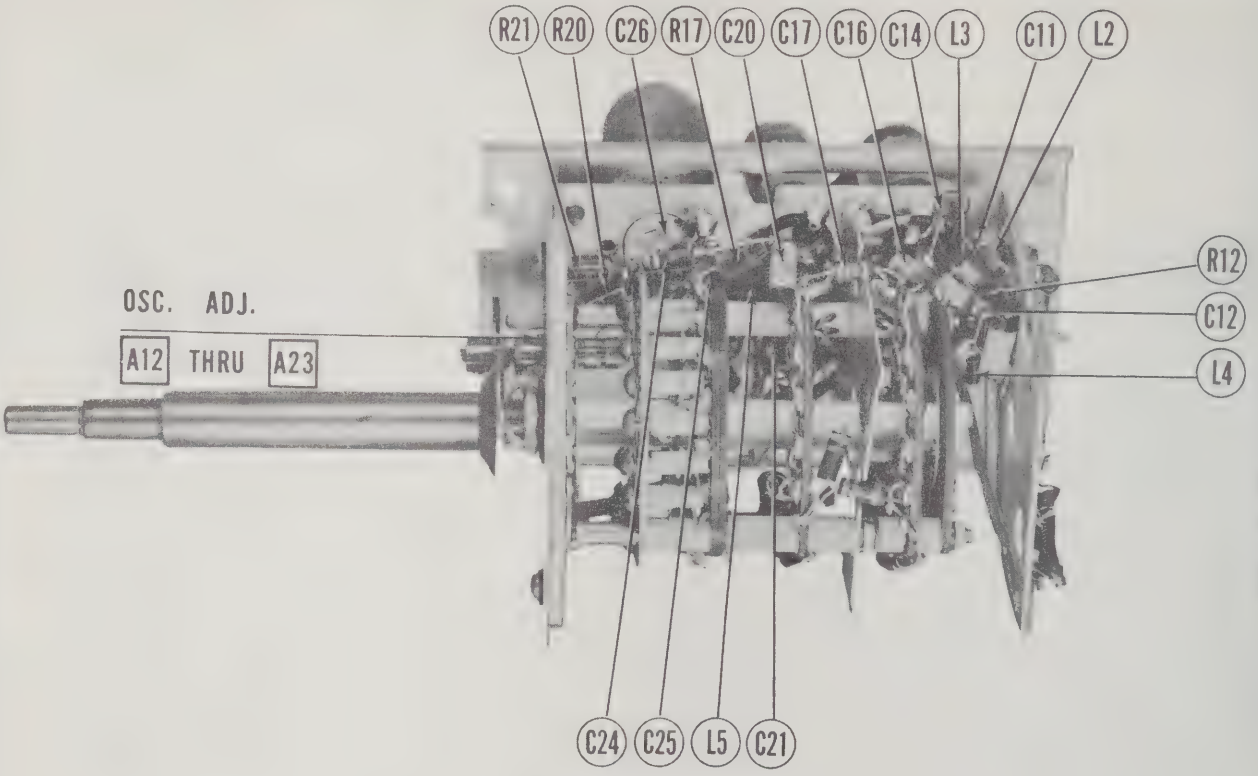
## DIAL LIGHTS

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA AIRLINE PART No. | | NOTES |
|---|---|---|---|---|---|---|---|
| M1 | Bayonet | 6-8 | .15 | Brown | 7A103 | | Type #47 |
| M2 | Bayonet | 6-8 | .15 | Brown | 7A103 | | Type #47 |

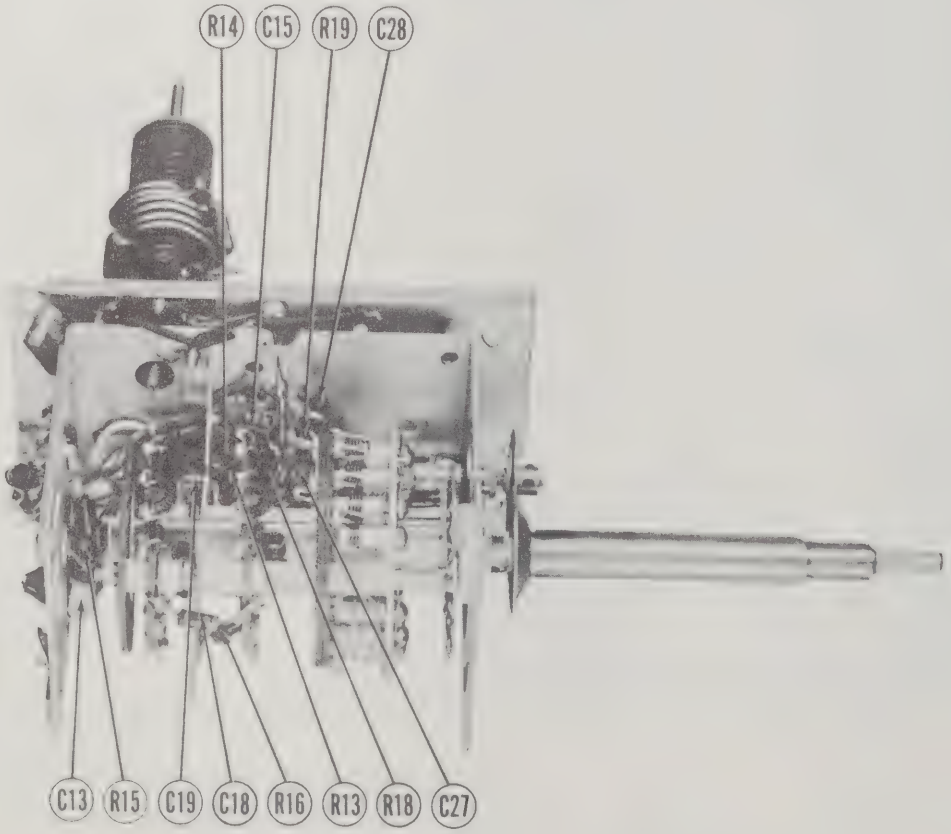
## MISCELLANEOUS

| ITEM No. | PART NAME | AIRLINE PART No. | NOTES |
|---|---|---|---|
| M3 | Tuner | S-25A1 | Complete |
| M4 | Band Switch | 2A386 | Includes TV power Switch. |
| M5 | Fuse | 16X132 | Type AGC 3A |
| M6 | Fuse | 16X133 | Type AGC .25A |
| M7 | Tuning Cap. | 14A207 | 20-473MMF, 32-215MMF W/T |
| M8 | Ion Trap | 2A382 | PM |
| | Safety Glass | 17X101 | |
| | Knob | 10A717 | Fine Tuning for Model 94WG-3008A. |
| | Knob | 10A714 | Brightness & Hor, Hold for model 94WG-3008A. |
| | Knob | 10A716 | Contrast and Vert. Hold for model 94WG-3008A. |
| | Knob | 10A718 | Channel Selector for model 94WG-3008A. |
| | Knob | 10A713 | Four used on radio for model 94WG-3008A. |
| | Dial Glass | 58X718 | For radio for model 94WG-3008A. |
| | Knob | 10A723 | Fine tuning for blond cabinet, |
| | Knob | 10A724 | Brightness and Hor. Hold for Blond Cabinet. |
| | Knob | 10A725 | Contrast, Vert. Hold, On-Off Sound. (Outside Knob) for blond cabinet. |
| | Knob | 10A726 | On-Off Sound (Inside Knob) for blonde cabinet. |
| | Knob | 10A727 | Channel Selector for blond cabinet. |
| | Knob | 10A717 | Fine tuning for mahogany cabinet. |
| | Knob | 10A714 | Brightness and Horiz. Hold for mahogany cabinet. |
| | Knob | 10A716 | Contrast, Vertical, On-Off Sound (Outside Knob) for mahogany cabinet. |
| | Knob | 10A715 | On-Off Sound (Inside Knob) for mahogany cabinet. |
| | Knob | 10A718 | Channel Selector for mahogany cabinet. |

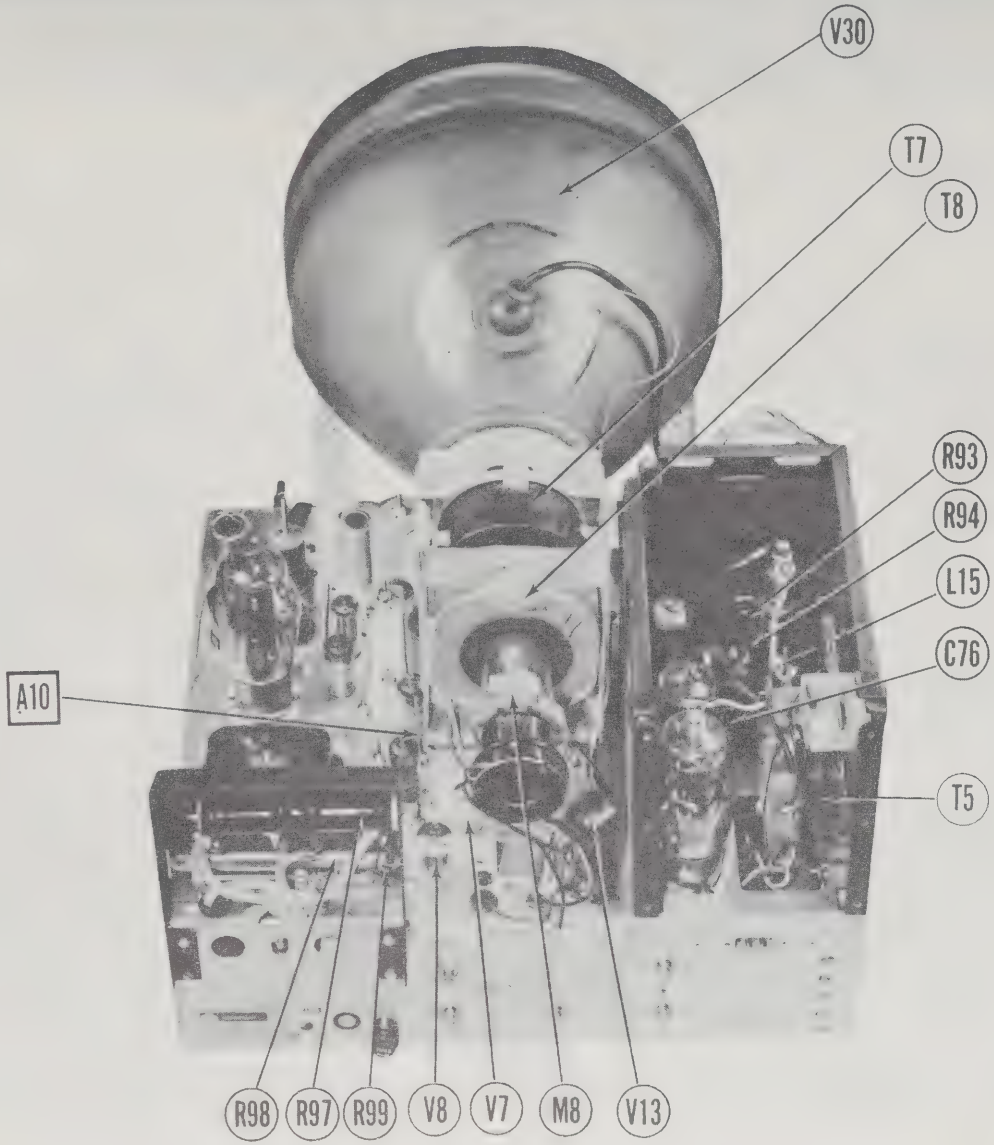

RF AMP
CONVERTER
1ST IF AMP
2ND FM IF AMP
RATIO DET
SEC.4 REAR
SEC.4 FRONT
SEC.1 REAR
SEC.2 REAR
SEC.3 REAR
6BA6
12AT7
6AL5
THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
PHONO MOTOR SOCKET
TV-AC SOCKET
RECTIFIER
5Y3GT
SW ON REAR OF BAND SW
SW ON VOL.CONT
BLK-YEL.
RED
YEL.
BLACK
GREEN
PHONO INPUT
TV INPUT
DET-AVC AF AMP
6AV6
PHASE INV
POWER OUTPUT
6K6GT
BLUE
BLK.
BROWN
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1949



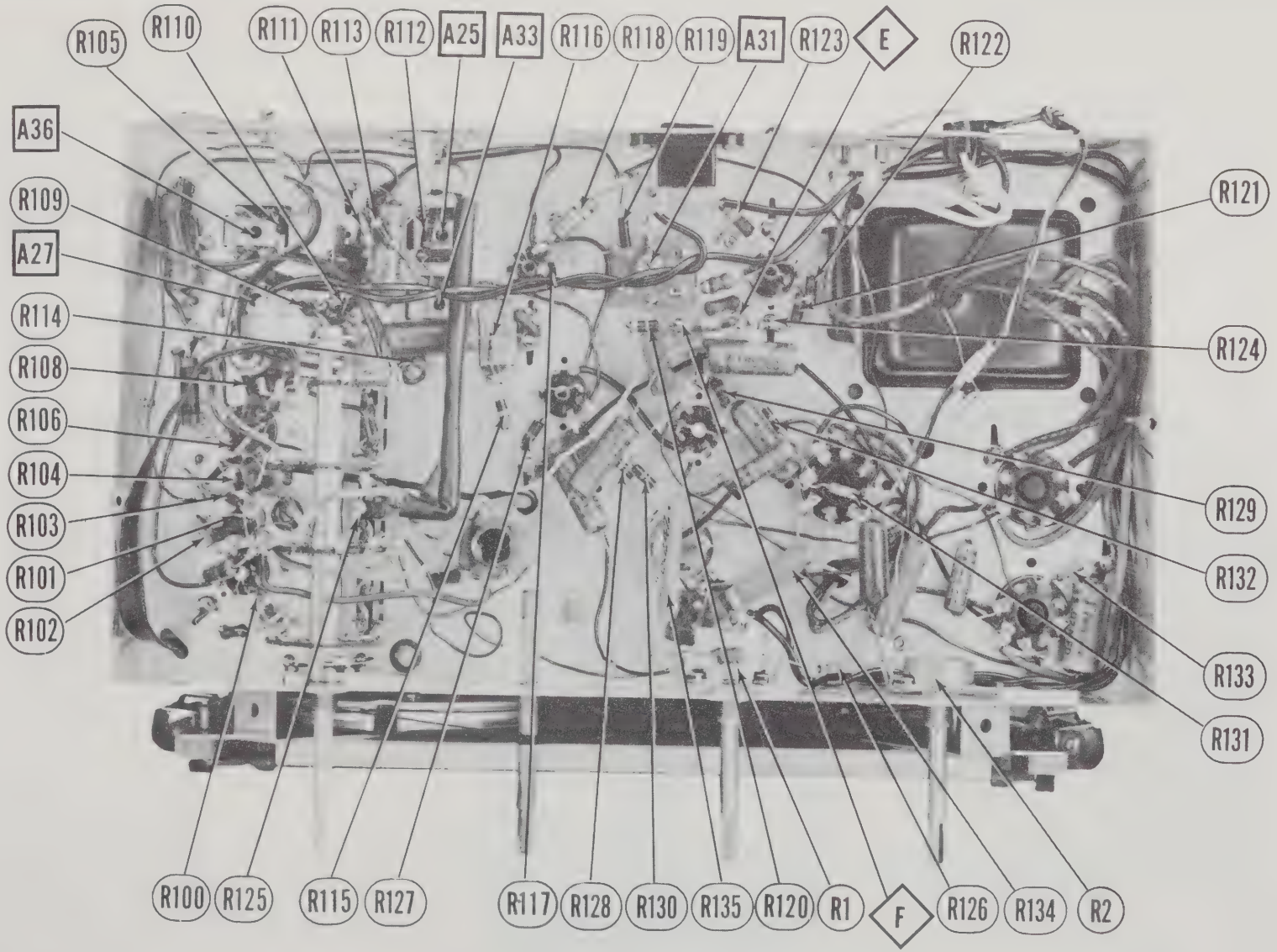

RF TUNER-RIGHT SIDE



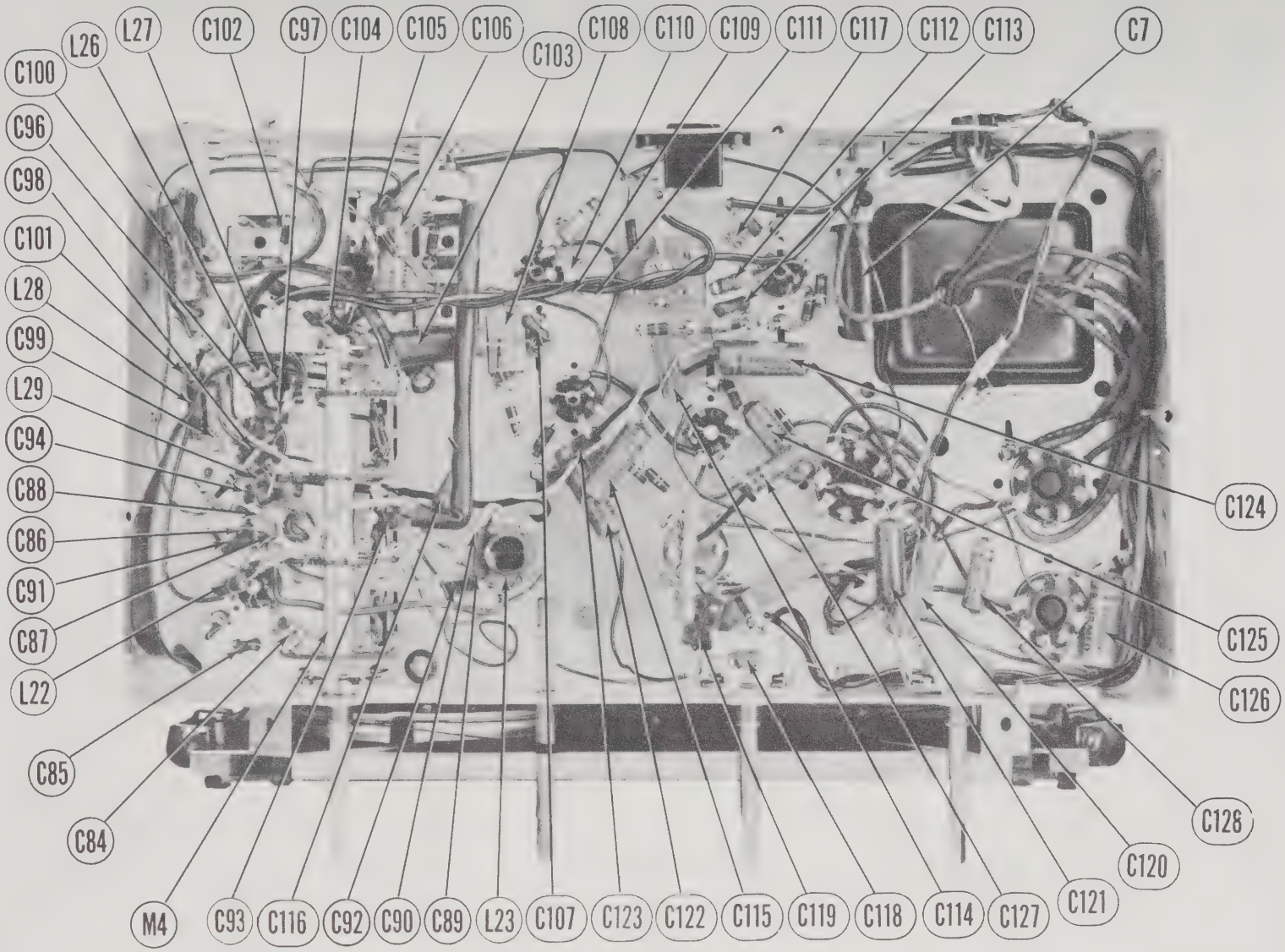

RF TUNER-LEFT SIDE




CHASSIS TOP VIEW




RADIO CHASSIS-BOTTOM VIEW-RESISTOR AND ALIGNMENT IDENTIFICATION




RADIO CHASSIS-BOTTOM VIEW-CAPACITOR AND INDUCTOR IDENTIFICATION

# HORIZONTAL OSC. AND LINEARITY ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK:

Tune in test pattern and turn horizontal hold control to extreme counter-clockwise position. Picture should remain in synchronization. Turn channel switch to another channel and then back to the original channel. Normally, the picture should be out of synchronization. Turn the control clockwise and the picture should slowly begin to synchronize and finally lock-in. This should occur when the control is approximately 90° from the extreme counter-clockwise position. The picture should remain in synchronization for another 90° in the clockwise direction of the control. At the extreme clockwise position the picture should again drop out of synchronization and 3½ to 4½ bars should be seen sloping downward to the right. If the receiver fails to hold synchronization during this check with the hold control at the extreme counter-clockwise position or fails to hold synchronization for at least 60° in the clockwise direction from the point when it drops into "sync". it will be necessary to align the horizontal oscillator circuit as follows:

(A) HORIZONTAL OSCILLATOR ALIGNMENT

Turn horizontal hold control to extreme clockwise position. Tune in test pattern and adjust trimmer B1 until picture is out of sync. and shows 3½ to 4½ bars sloping downward to the right. If the trimmer has insufficient range, set it to its mid-position (one turn from tight) and adjust slug B2 until bars appear.

(B) HORIZONTAL LOCKING ALIGNMENT:

Turn the horizontal hold control to full counter-clockwise position. Switch to another channel and back to the original again.

Slowly turn horizontal hold control clockwise and note the lest number of diagonal bars present just before picture sync. If more than 4½ bars are present just before picture sync. adjust "horizontal lock" trimmer B3 slightly clockwise. If less than 3½ bars are present, adjust B3 slightly counter-clockwise and switch channel selector to another channel and back again. Recount bars present at the "lock-in"point. Repeat this procedure until 3½ to 4½ bars are present.

Repeat Steps (A) and (B) until conditions exist as outlined under "Horizontal Oscillator Alignment Check".

WIDTH, DRIVE & HORIZONTAL LINEARITY ADJUSTMENTS:

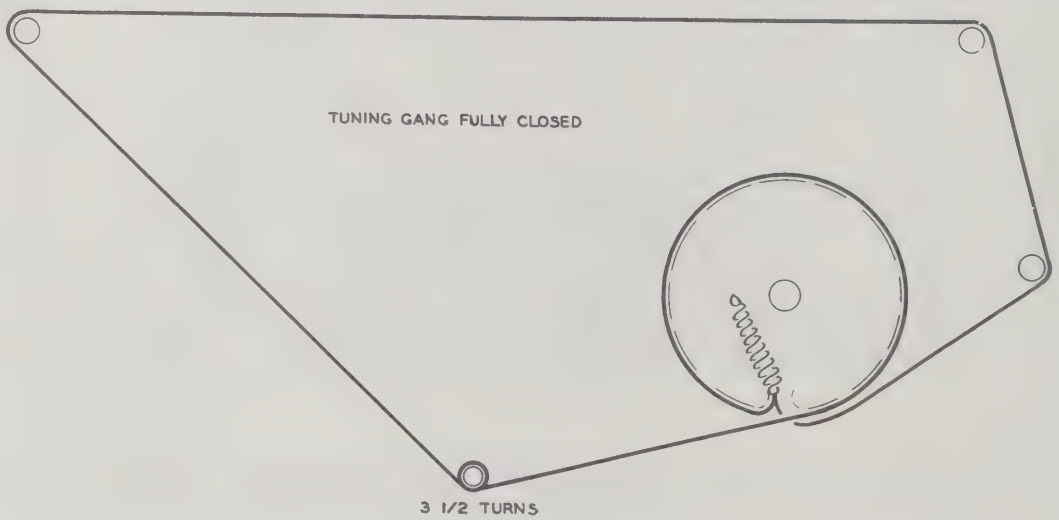
Turn width control B4 to maximum clockwise position. Adjust "horizontal drive" trimmer B5 for maximum brightness and linearity. Adjust horizontal linearity B6 for best linearity in the right half of the picture. Readjust width control until picture fills the mask.

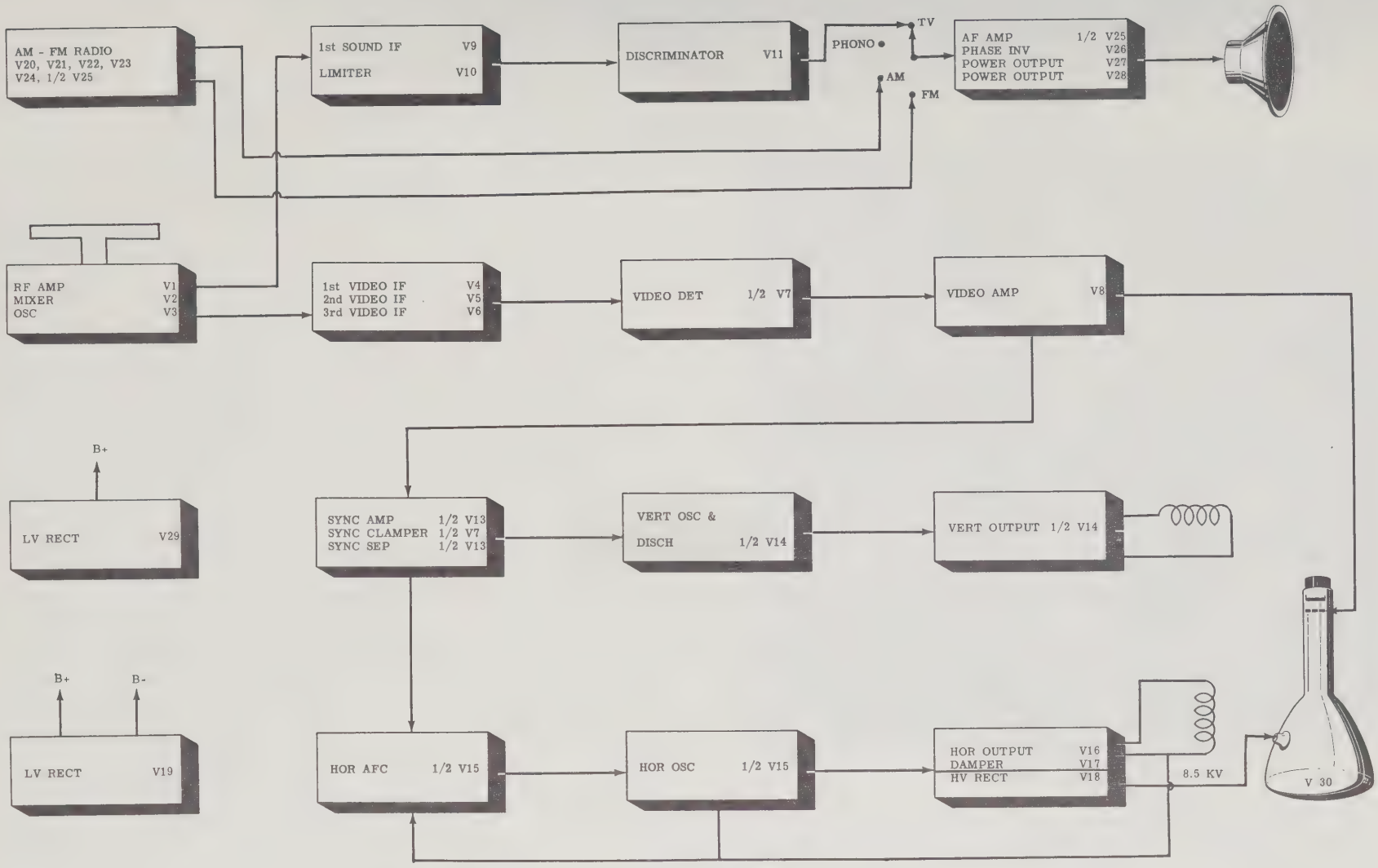
HEIGHT & VERICAL LINEARITY ADJUSTMENTS:

Adjust the height control until picture fills mask vertically. Adjust the vertical linearity control until the test pattern is symmetrical from top to bottom.

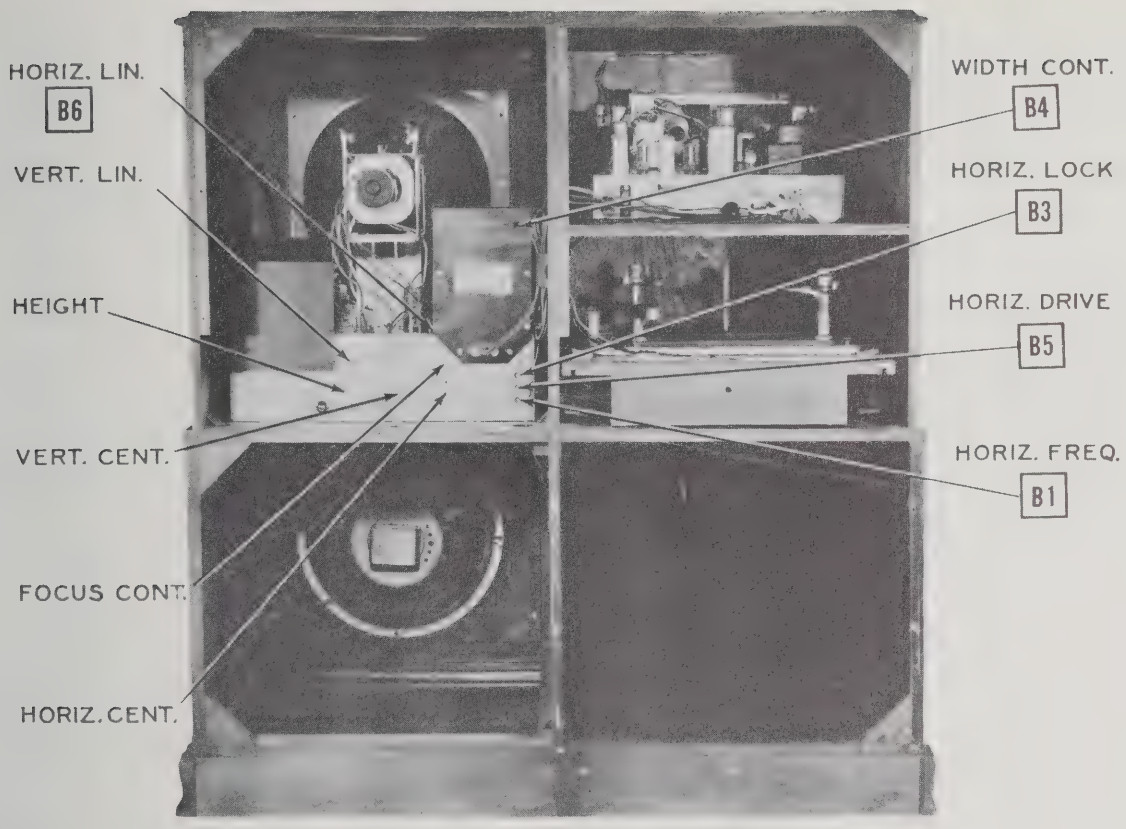
Due to interaction between these two controls it is necessary to repeat the adjustments. Adjust the vertical centering control to align the picture with the mask.

## DIAL CORD STRINGING






BLOCK DIAGRAM



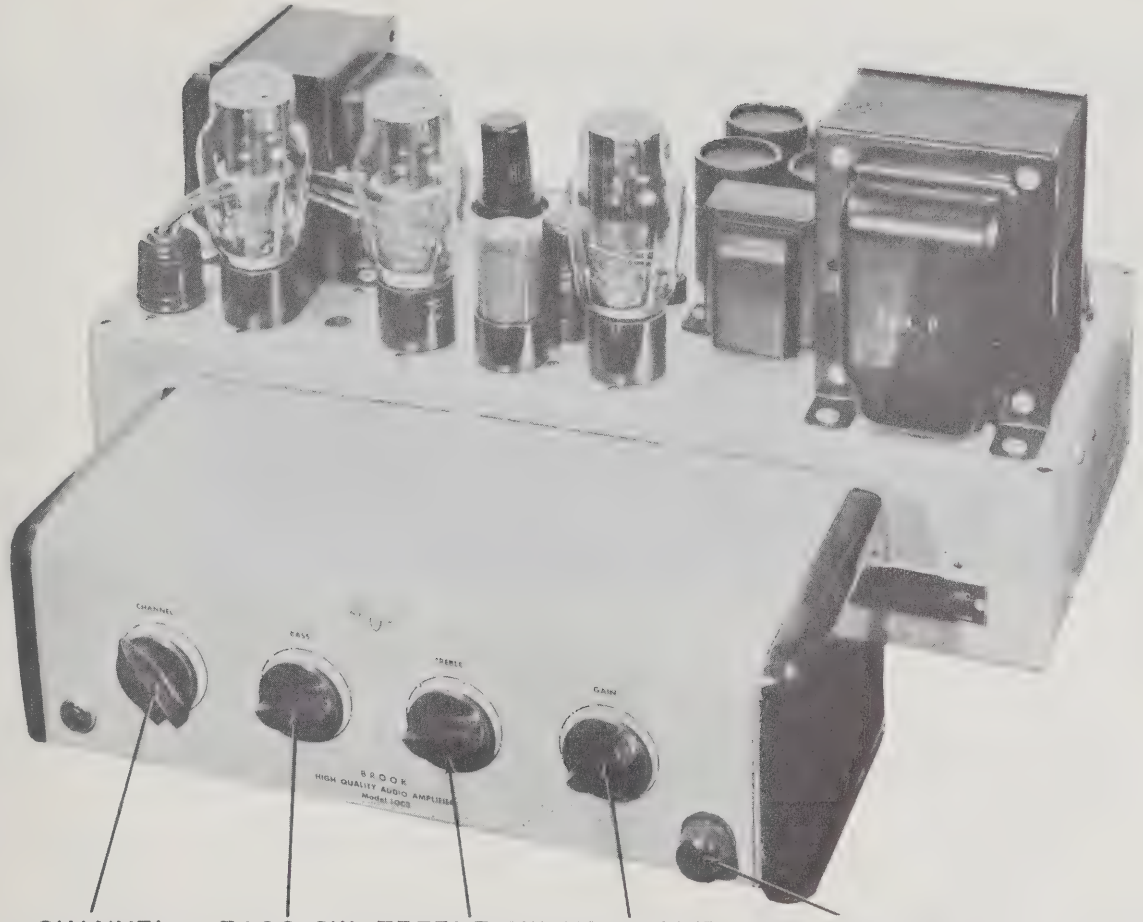



# DISASSEMBLY INSTRUCTIONS

1. Remove three push-on type knobs from TV controls.
2. Remove four push-on type knobs from receiver controls.
3. Remove six fasteners holding cover over rear of TV section.
4. Remove 16 screws holding cover over rear of phono section.
5. Disconnect TV antenna plug from left rear of receiver chassis.
6. Disconnect TV audio plug from rear of receiver chassis.
7. Disconnect TV power plug from rear of receiver chassis.
8. Remove five 7/16" hex head bolts holding TV chassis to mounting board. Remove TV chassis.
9. Remove speaker wires at speaker.
10. Remove phono motor power plug from rear of receiver chassis.
11. Remove phono audio plug from rear of receiver chassis.
12. Remove three 1/4" hex head bolts holding receiver chassis to mounting board. Remove receiver.
13. Remove four screws holding speaker to cabinet. Remove speaker.

# BROOK
# MODEL 10C3

BROOK
MODEL 10C3



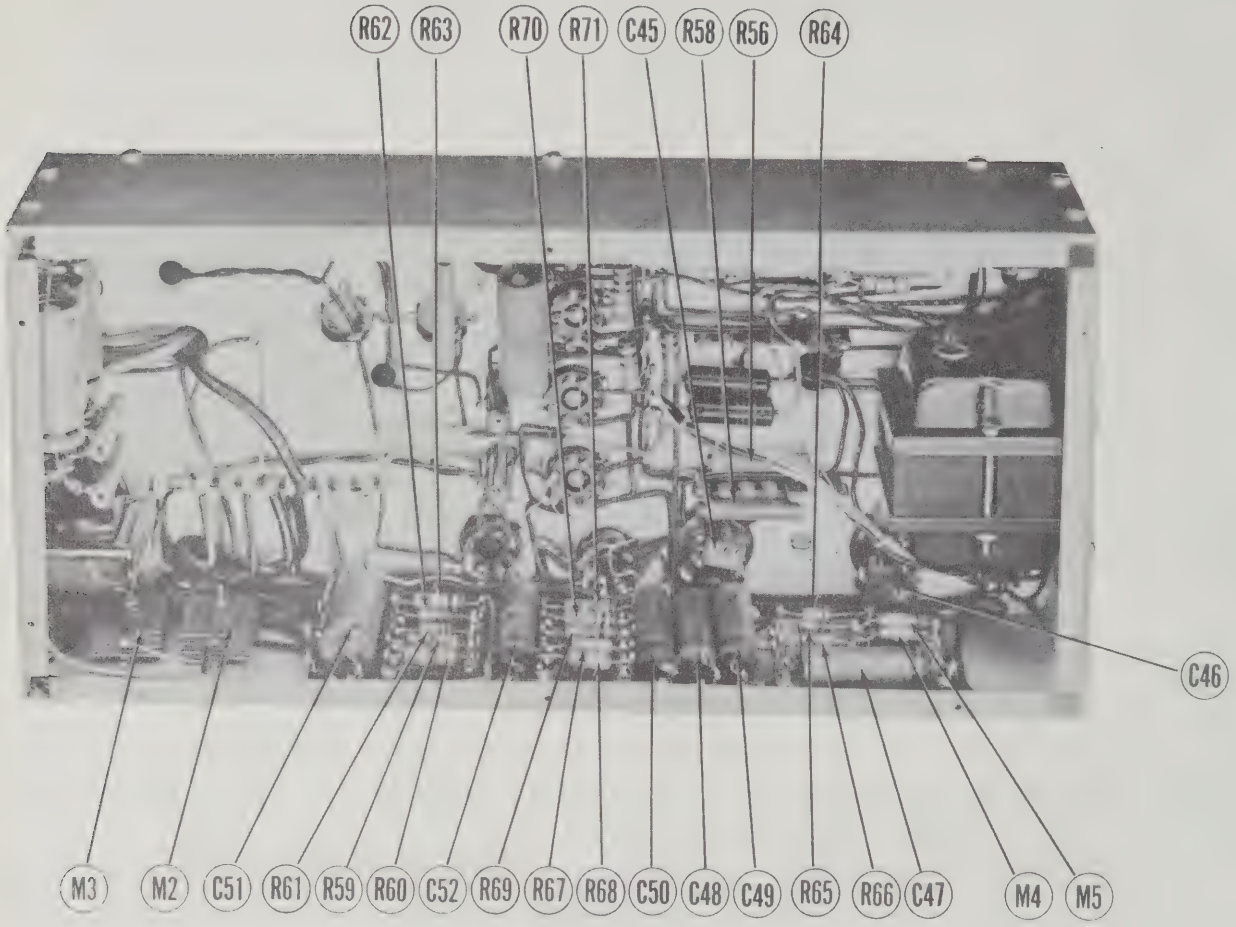

BROOK
MODEL 10C3

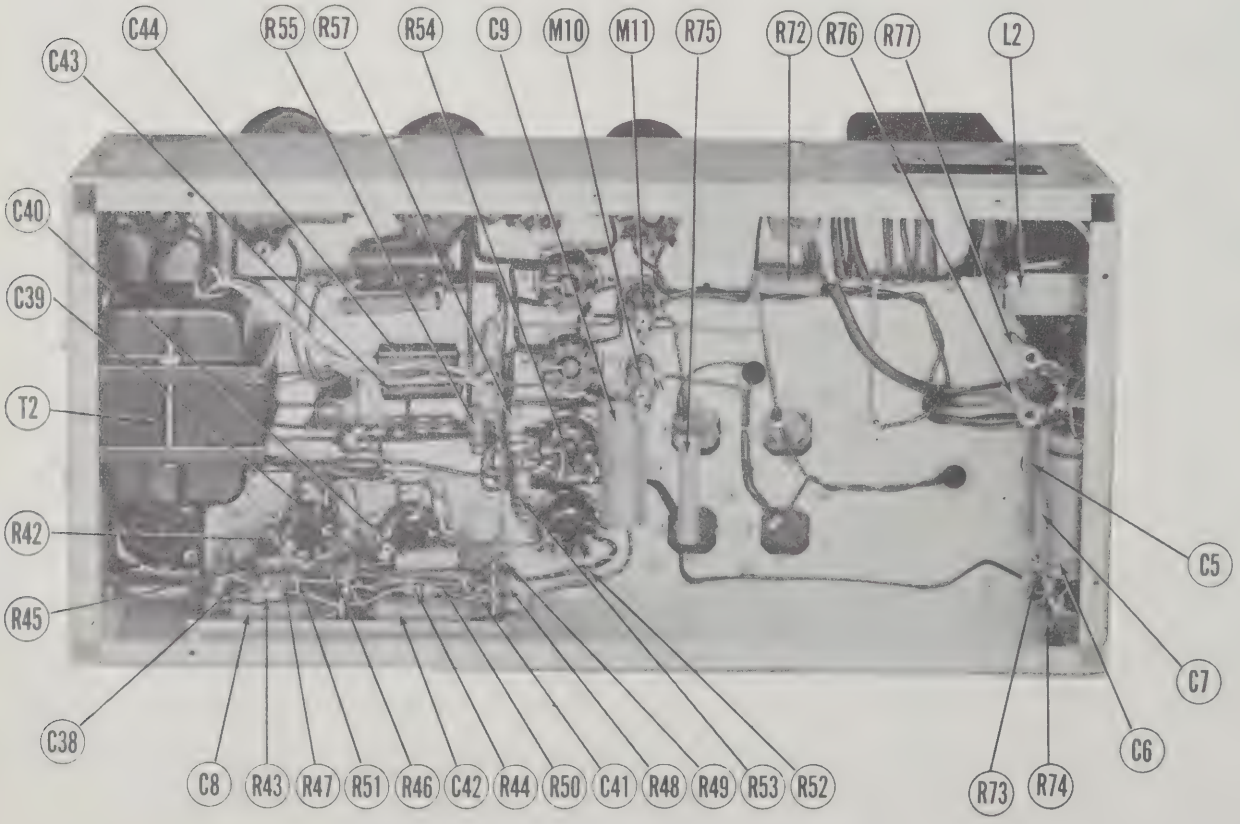
BROOK MODEL 10C3

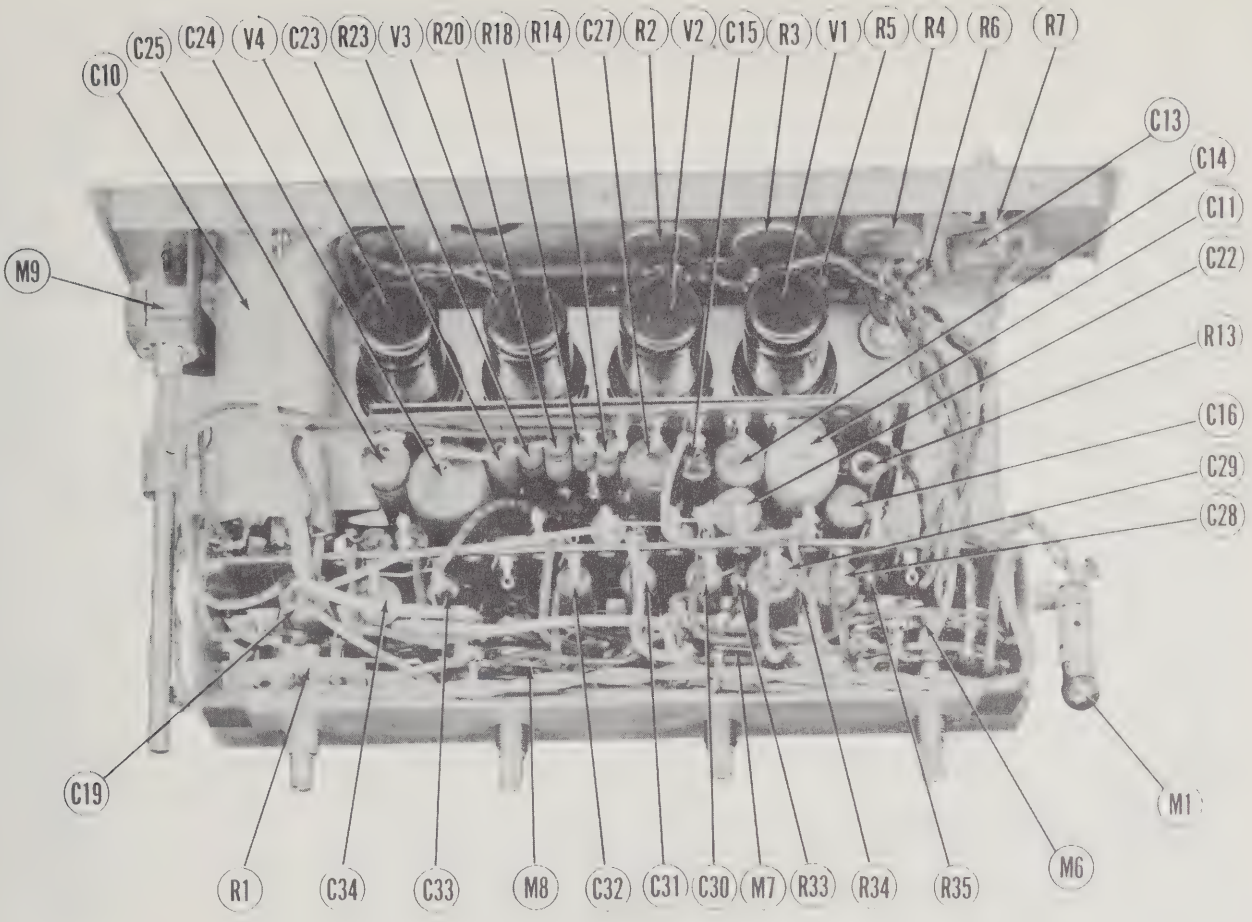
| | |
|---|---|
| TRADE NAME | Brook, Model 10C3 |
| MANUFACTURER | Brook Electronics, Inc., 34 Dehart Place, Elizabeth, New Jersey |
| TYPE SET | AC Operated 4 Channel Audio Amplifier. |
| TUBES(FOURTEEN) | Types (2) 6SJ7 Pre-Amp., (2) 6SJ7 Tone Amp., 6J5 AF Amp., 6J5 Phase Inverter, (2) 6J5 AF Amp., (2) 6J5 Driver, (2) 2A3 Power Output, 6SN7GT Bias Control, 5U4G Rectifier. |
| POWER SUPPLY | 110-120 Volts AC RATING: 1.23 Amp. @ 117 Volts AC |

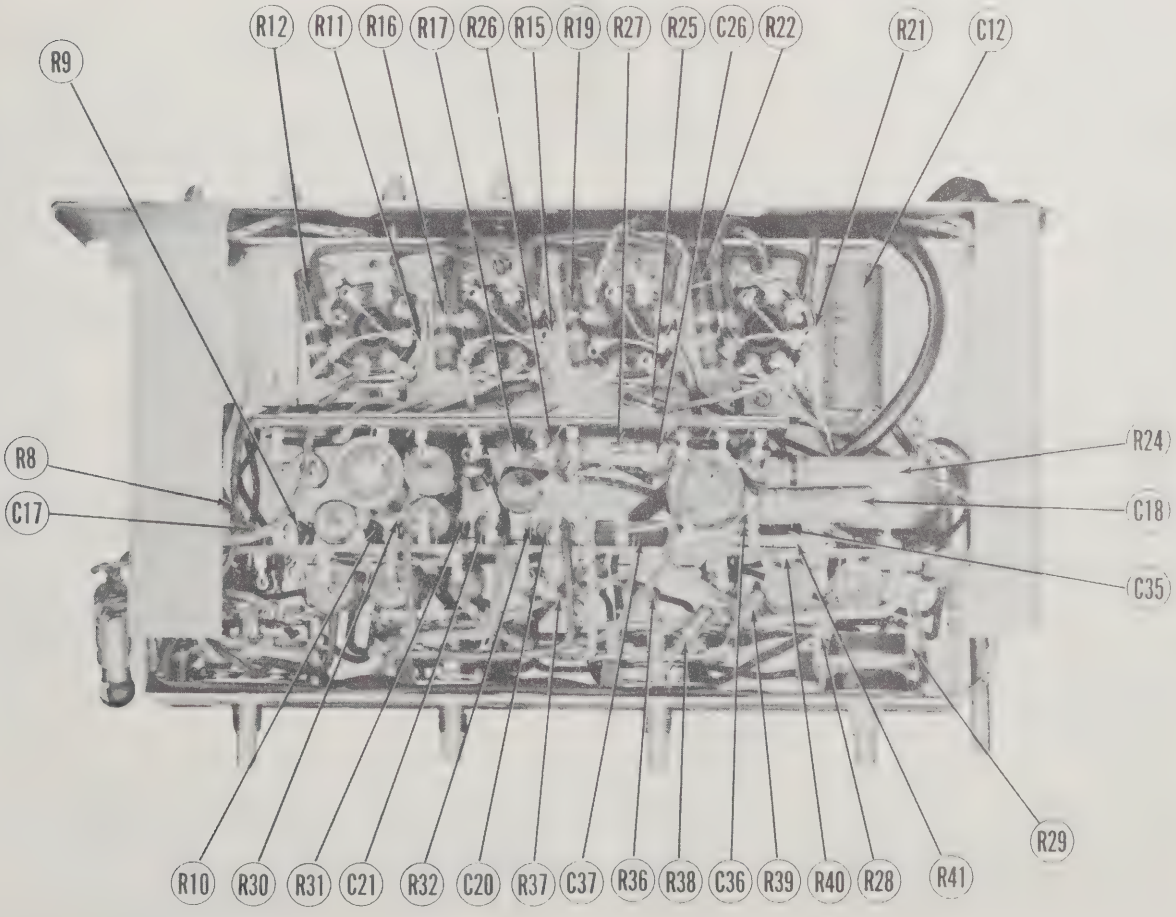
**HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America


R62
R63
R70
R71
C45
R58
R56
R64
C46
M3
M2
C51
R61
R59
R60
C52
R69
R67
R68
C50
C48
C49
R65
R66
C47
M4
M5


C44
R55
R57
R54
C9
M10
M11
R75
R72
R76
R77
L2
C43
C40
C39
T2
R42
R45
C38
C5
C7
C6
C8
R43
R47
R51
R46
C42
R44
R50
C41
R48
R49
R53
R52
R73
R74


C25
C24
V4
C23
R23
V3
R20
R18
R14
C27
R2
V2
C15
R3
V1
R5
R4
R6
R7
C10
C13
C14
C11
C22
M9
R13
C16
C29
C28
C19
M1
R1
C34
C33
M8
C32
C31
C30
M7
R33
R34
R35
M6


R12
R11
R16
R17
R26
R15
R19
R27
R25
C26
R22
R21
C12
R9
R24
R8
C18
C17
C35
R29
R10
R30
R31
C21
R32
C20
R37
C37
R36
R38
C36
R39
R40
R28
R41

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: BROOK PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| V1 | Pre Amp. | 6SJ7 | 6SJ7 | 8N | |
| V2 | Pre Amp. | 6SJ7 | 6SJ7 | 8N | |
| V3 | Tone Amp. | 6SJ7 | 6SJ7 | 8N | |
| V4 | Tone Amp. | 6SJ7 | 6SJ7 | 8N | |
| V5 | AF Amp. | 6J5 | 6J5 | 6Q | |
| V6 | Phase Inv. | 6J5 | 6J5 | 6Q | |
| V7 | AF Amp. | 6J5 | 6J5 | 6Q | |
| V8 | AF Amp. | 6J5 | 6J5 | 6Q | |
| V9 | Driver | 6J5 | 6J5 | 6Q | |
| V10 | Driver | 6J5 | 6J5 | 6Q | |
| V11A | Power Output | 2A3 | 2A3 | 4D | |
| B | Power Output | 300B | 300B | | |
| V12A | Power Output | 2A3 | 2A3 | 4D | |
| B | Power Output | 300B | 300B | | |
| V13 | Bias Control | 6SN7GT | 6SN7GT | 8BD | |
| V14 | Rectifier | 5U4G | 5U4G | 5T | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: BROOK PART No. | REPLACEMENT DATA: AEROVOX PART No. | REPLACEMENT DATA: CORNELL-DUBILIER PART No. | REPLACEMENT DATA: ERIE PART No. | REPLACEMENT DATA: SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1 | 40 | 475 | | AF8J | UP2250‡ | | | Filter Note 1 |
| C2 | 40 | 475 | | AF8J | UP2250‡ | | | Filter Note 1 |
| C3 | 40 | 475 | | AF8J | UP2250‡ | | | Filter Note 1 |
| C4 | 40 | 475 | | AF8J | UP2250‡ | | | Filter Note 1 |
| C5 | 20 | 450 | | PRS450/20 | BR2045 | | UT-20 | Filter |
| C6 | 20 | 450 | | PRS450/20 | BR2045 | | UT-20 | Filter |
| C7 | 40 | 150 | | PRS150/40 | BR4015 | | UT-401 | Filter |
| C8 | 20 | 25 | | PRS25/25 | BR205 | | TA-25 | AF Amp. Cath. Bypass |
| C9 | 40 | 150 | | PRS150/40 | BR4015 | | UT-401 | Driver Cath. Bypass |
| C10A | 30 | 475 | | AF444J | UP9CJ390 | | TVL-55 | Decoupling Note 2 |
| B | 30 | 475 | | | | | | Decoupling Note 2 |
| C | 30 | 475 | | | | | | Decoupling Note 2 |
| C11 | 40 | 150 | | PRS150/40 | BR4015 | | UT-401 | Pre-Amp. Cath. Bypass |
| C12 | 25 | 50 | | PRS50/25 | BR255 | | TA-525 | Tone Amp. Cath. Bypass |
| C13 | 180 | 500 | | 1468-0002 | 5W5T2 | GP2K-200 | 1FM-32 | Tone Compensation |
| C14 | .05 | 600 | | P688-05 | GT6S5 | | TM-15 | Audio Coupling |
| C15 | .022 | 600 | | P688-022 | GT6S2 | | TM-12 | Audio Coupling |
| C16 | .03 | 600 | | P688-03 | GT6S3 | | TM-13 | Tone Compensation |
| C17 | .022 | 600 | | P688-022 | GT6S2 | | TM-12 | Tone Compensation |
| C18 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Tone Compensation |
| C19 | .1 | 400 | | P488-1 | GT4P1 | | TM-1 | Tone Compensation |
| C20 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Tone Compensation |
| C21 | .022 | 600 | | P688-022 | GT6S2 | | TM-12 | Tone Compensation |
| C22 | .05 | 400 | | P488-05 | GT4S5 | | TM-15 | Tone Compensation |
| C23 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C24 | .5 | 400 | | 484-5 | GT4P5 | | TC-5 | Audio Coupling |
| C25 | .2 | 400 | | P488-22 | GT4P2 | | TC-2 | Audio Coupling |
| C26 | .01 | 600 | | P688-01 | GT6S1 | GP2-335-01 | TM-11 | Tone Compensation |
| C27 | .1 | 200 | | P288-1 | GT2P1 | | TM-1 | Tone Compensation |
| C28 | .1 | 400 | | P488-1 | GT4P1 | | TM-1 | Tone Compensation |
| C29 | .05 | 600 | | P688-05 | GT6S5 | | TM-15 | Tone Compensation |
| C30 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Tone Compensation |
| C31 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Tone Compensation |
| C32 | .005 | 600 | | P688-005 | GT6D5 | GP2M-005 | TM-25 | Tone Compensation |
| C33 | .022 | 600 | | P688-022 | GT6S2 | | TM-12 | Tone Compensation |
| C34 | .05 | 600 | | P688-05 | GT6S5 | | TM-15 | Tone Compensation |
| C35 | .015 | 400 | | P488-015 | GT6S15 | | | Tone Compensation |
| C36 | .005 | 600 | | P688-005 | GT6D5 | GP2M-005 | TM-25 | Tone Compensation |
| C37 | 1500 | 500 | | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | Tone Compensation |
| C38 | .01 | 600 | | P688-01 | GT6S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C39 | 180 | 500 | | 1468-0002 | 5W5T2 | GP2K-200 | 1FM-32 | Tone Compensation |
| C40 | .002 | 400 | | P688-002 | GT6D2 | GP2M-002 | TM-22 | Audio Coupling |
| C41 | .1 | 600 | | P688-1 | GT6P1 | | TM-1 | Audio Coupling |
| C42 | .1 | 600 | | P688-1 | GT6P1 | | TM-1 | Audio Coupling |

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: BROOK PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES | |
|---|---|---|---|---|---|---|
| R38 | 220Ω | ½ | | BW-½-220 | Tone Compensation | Wire Wound |
| R39 | 220Ω | ½ | | BW-½-220 | Tone Compensation | Wire Wound |
| R40 | 470KΩ | ½ | | BTS-470K | Tone Compensation | |
| R41 | 470KΩ | ½ | | BTS-470K | Tone Compensation | |
| R42 | 470KΩ | ½ | | BTS-470K | AF Grid | |
| R43 | 4700Ω | ½ | | BTS-4700 | AF Cathode | |
| R44 | 82Ω | ½ | | BW-½-82 | AF Cathode | |
| R45 | 33KΩ | 1 | | BTA-33K | AF Plate | |
| R46 | 22KΩ | ½ | | BTS-22K | Tone Compensation | |
| R47 | 1000Ω | ½ | | BTS-1000 | Feedback | |
| R48 | 470KΩ | ½ | | BTS-470K | Phase Inv. Grid | |
| R49 | 4700Ω | ½ | | BTS-4700 | Phase Inv. Cathode | |
| R50 | 33KΩ | 1 | | BTA-33K | Phase Inv. Cathode | |
| R51 | 33KΩ | 1 | | BTA-33K | Phase Inv. Plate | |
| R52 | 220KΩ | ½ | | BTS-220K | AF Amp. Grid | |
| R53 | 1000Ω | 2 | | BT-2-1000 | AF Amp. Cathode | |
| R54 | 220KΩ | ½ | | BTS-220K | AF Amp. Grid | |
| R55 | 22KΩ | 1 | | BTA-22K | Driver Grid | |
| R56 | 27KΩ | 2 | | BT-2-27K | Driver Cathode | |
| R57 | 22KΩ | 1 | | BTA-22K | Driver Grid | |
| R58 | 27KΩ | 2 | | BT-2-27K | Driver Cathode | |
| R59 | 47KΩ | 1 | | BTA-47K | Bias Control Plate | |
| R60 | 47KΩ | 1 | | BTA-47K | Bias Control Plate | |
| R61 | 150KΩ | ½ | | BTS-150K | Voltage Divider | |
| R62 | 150KΩ | ½ | | BTS-150K | Voltage Divider | |
| R63 | 100KΩ | ½ | | BTS-100K | Voltage Divider | |
| R64 | 100KΩ | ½ | | BTS-100K | Bias Control Grid | |
| R65 | 200KΩ | ½ | | BTS-220K | Bias Rect. Load | |
| R66 | 47KΩ | ½ | | BTS-47K | Bias Rect. Load | |
| R67 | 470KΩ | 1 | | BTA-470K | Bias Control Plate | |
| R68 | 470KΩ | 1 | | BTA-470K | Bias Control Plate | |
| R69 | 1 Meg. | 1 | | BTA-1 Meg | Voltage Divider | |
| R70 | 2.2 Meg | 1 | | BTA-2.2 Meg | Voltage Divider | |
| R71 | 2.7 Meg | 1 | | BTA-2.7 Meg | Voltage Divider | |
| R72 | 15Ω | 5 | | AB-15 | Output Cathode | Wire Wound |
| R73 | 220KΩ | 1 | | BTA-220K | Filter | |
| R74 | 22KΩ | 1 | | BTA-22K | Bleeder | |
| R75 | 1000Ω | 10 | | AB-1000 | Filter | Wire Wound |
| R76 | 10KΩ | 10 | | AB-10K | Bleeder | Wire Wound |
| R77 | 50Ω | 10 | | | Surge Limiter | Wire Wound |
| R78 | 40Ω | 5 | | | Output Cathode | Note 1 |

Note 1. Used Only When 300B Output Tubes Are Used.

## TRANSFORMER (POWER)

| ITEM No. | RATING: PRI. | RATING: SEC. 1 | RATING: SEC. 2 | RATING: SEC. 3 | REPLACEMENT DATA: BROOK PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: CHICAGO PART No. | REPLACEMENT DATA: MERIT PART No. |
|---|---|---|---|---|---|---|---|---|
| T1 | 117VAC @ 1.23A | 680VCT .132A DC Tapped @170 VAC | 5VAC @ 3A | 5VAC @ 3A (Not Used) | | | | |
| | | SEC. 4 | SEC. 5 | SEC. 6 | | | | |
| | | 2.5VAC @ 5A | 6.6VAC @ 1.4A | 6.6VCT @ 2.8A | | | | |

## TRANSFORMER (DRIVER)

| ITEM No. | RATING: TURNS RATIO PRI. TO SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: BROOK PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: CHICAGO PART No. | REPLACEMENT DATA: MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| T2 | 1 TO 1 | 1240Ω | 1150Ω | W-116R | | | | |
| | PRI. 2 TO SEC. 2 | PRI. 3 | SEC. 2 | | | | | |
| | 1 TO 1 | 1240Ω | 1150Ω | | | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA BROOK PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C43 | .033 | 1000 | | P1088-033 | GT16S3 | | MB-13 | Audio Coupling |
| C44 | .033 | 1000 | | P1088-033 | GT16S3 | | MB-13 | Audio Coupling |
| C45 | 50 | 500 | | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | Output Plate Bypass |
| C46 | 50 | 500 | | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | Output Plate Bypass |
| C47 | .1 | 600 | | P688-1 | GT6P1 | | TM-1 | Audio Coupling |
| C48 | .1 | 600 | | P688-1 | GT6P1 | | TM-1 | Bias Filter |
| C49 | .1 | 600 | | P688-1 | GT6P1 | | TM-1 | Bias Filter |
| C50 | .1 | 600 | | P688-1 | GT6P1 | | TM-1 | Bias Filter |
| C51 | .5 | 400 | | 484-5 | GT4P5 | | TC-5 | Bias Filter |
| C52 | .1 | 600 | | P688-1 | GT6P1 | | TM-1 | Bias Cont. Plate Bypass |

Note 1. Some Models Use 30MFD In This Application.
Note 2. Some Models Use 20MFD In This Application.
‡ Parallel Sections To Obtain Desired Capacity.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA BROOK PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| R1A | 500KΩ | ½ | | | | Volume control, front section, tapped @ 100KΩ and 200KΩ. |
| B | 10KΩ | ½ | | | | Volume control, rear section. |
| R2 | 100KΩ | ½ | | Q11-128 | M-49-S | "A" Level control. |
| R3 | 100KΩ | ½ | | Q11-128 | M-49-S | "B" Level control. |
| R4 | 250KΩ | ½ | | Q11-130 | M-55-S | "C" Level control. |

## RESISTORS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA BROOK PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R5 | 22KΩ | ½ | | BTS-22K | Phono Input Load |
| R6 | 22KΩ | ½ | | BTS-22K | Phono Input Load |
| R7 | 470KΩ | ½ | | BTS-470K | Mike Tone Compensation |
| R8 | 2.2 Meg. | ½ | | BTS-2.2 Meg | Tone Compensation |
| R9 | 68KΩ | 1 | | BTA-68K | Tone Compensation |
| R10 | 33KΩ | ½ | | BTS-33K | Tone Compensation |
| R11 | 470KΩ | ½ | | BTS-470K | Pre Amp. Grid |
| R12 | 1500Ω | 1 | | BW-1-1500 | Pre Amp. Cathode Wire Wound |
| R13 | 50KΩ | 10 | | | Pre Amp. Plate Wire Wound |
| R14 | 10KΩ | 1 | | BTA-10K | Filter |
| R15 | 470KΩ | ½ | | BTS-470K | Pre Amp. Grid |
| R16 | 1500Ω | 1 | | BW-1-1500 | Pre Amp. Cathode Wire Wound |
| R17 | 47KΩ | 2 | | BT-2-47K | Pre Amp. Plate |
| R18 | 10KΩ | 1 | | BTA-10K | Filter |
| R19 | 1500Ω | 1 | | BW-1-1500 | Tone Amp. Cathode Wire Wound |
| R20 | 100KΩ | 2 | | BT-2-100K | Tone Amp. Plate |
| R21 | 470KΩ | ½ | | BTS-470K | Tone Amp. Grid |
| R22 | 1500Ω | 1 | | BW-1-1500 | Tone Amp. Cathode Wire Wound |
| R23 | 47KΩ | 2 | | BT-2-47K | Tone Amp. Plate |
| R24 | 10KΩ | 2 | | BT-2-10K | Filter |
| R25 | 220KΩ | ½ | | BTS-220K | Tone Compensation |
| R26 | 33KΩ | ½ | | BTS-33K | Tone Compensation |
| R27 | 2.2 Meg | ½ | | BTS-2.2 Meg | Tone Compensation |
| R28 | 22KΩ | ½ | | BTS-22K | Tone Compensation |
| R29 | 16KΩ | ½ | | BTS-15K | Tone Compensation |
| R30 | 2.2 Meg | ½ | | BTS-2.2 Meg | Tone Compensation |
| R31 | 2.2 Meg | ½ | | BTS-2.2 Meg | Tone Compensation |
| R32 | 2.2 Meg | ½ | | BTS-2.2 Meg | Tone Compensation |
| R33 | 2.2 Meg | ½ | | BTS-2.2 Meg | Tone Compensation |
| R34 | 2.2 Meg | ½ | | BTS-2.2 Meg | Tone Compensation |
| R35 | 2.2 Meg | ½ | | BTS-2.2 Meg | Tone Compensation |
| R36 | 4700Ω | ½ | | BTS-4700 | Tone Compensation |
| R37 | 4700Ω | ½ | | BTS-4700 | Tone Compensation |

DATE 10/49 SET #72 FOLDER #5

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING IMPEDANCE PRI. | RATING IMPEDANCE SEC. | RATING DC RES. PRI. | RATING DC RES. SEC. | REPLACEMENT DATA BROOK PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T3 | 4000Ω CT | 1.5<br>-3Ω<br>3.1<br>-6Ω<br>6.1<br>-11Ω<br>11.1<br>-16Ω<br>16.1<br>-30Ω<br>500Ω | 230Ω CT | .2Ω<br>.3Ω<br>.7Ω<br>1.1Ω<br>1.5Ω<br>40Ω | W-126K | | | | |

## FILTER CHOKE

| ITEM No. | RATINGS TOTAL DIRECT CURRENT | RATINGS D. C. RESISTANCE | RATINGS INDUCTANCE (0 CURRENT 1000 ∿) | REPLACEMENT DATA BROOK PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| L1 | .132A | 45Ω | 1.8Henries | W114K | | | | |
| L2 | .040A | 280Ω | 9 Henries | W115K | | | | |
| L3 | .010A | 1200Ω | 35 Henries | W124L | | | | |

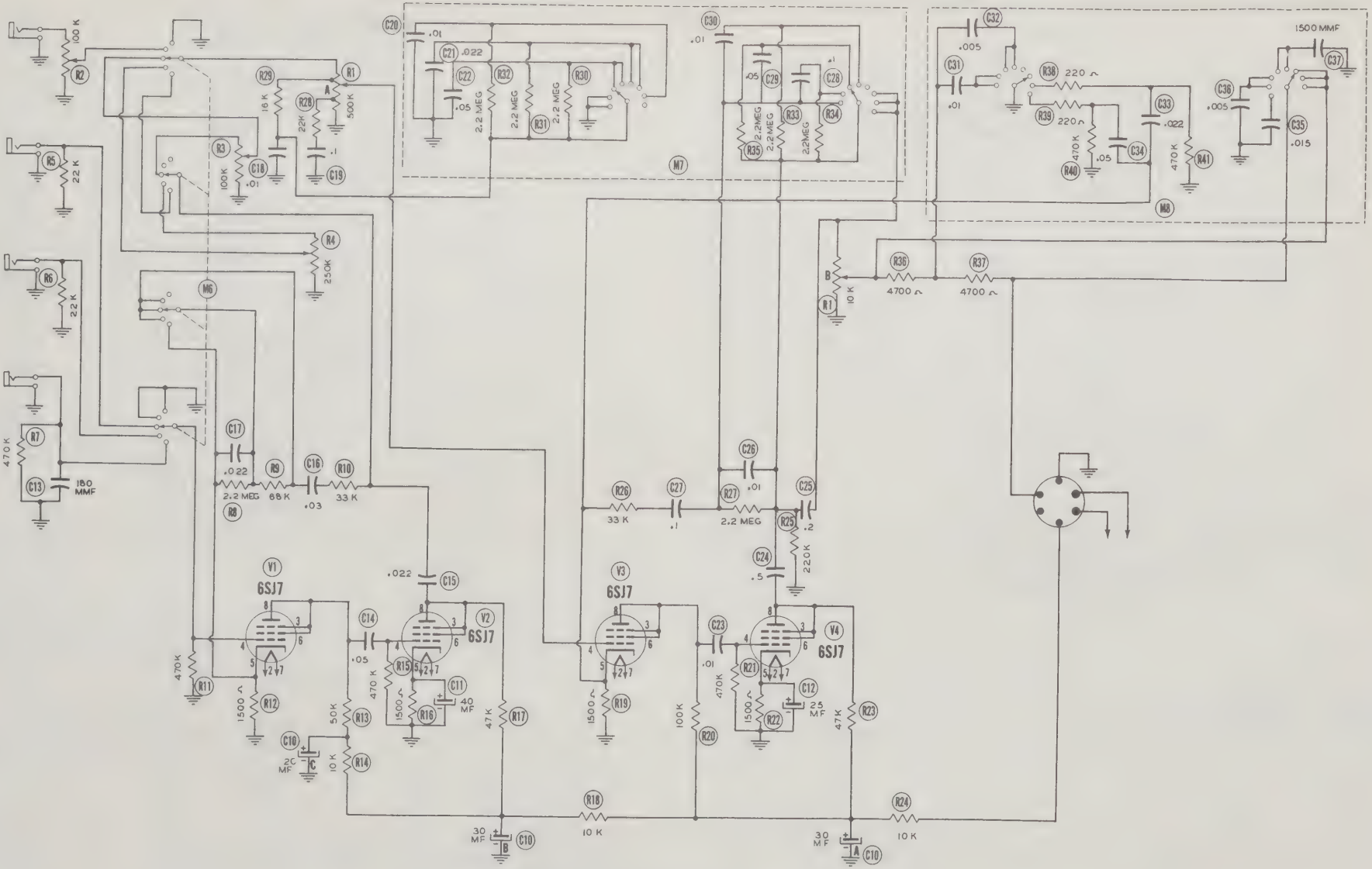
## DIAL LIGHTS

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA BROOK PART No. | | NOTES |
|---|---|---|---|---|---|---|---|
| M1 | Bayonet | 7.5 | .2 | White | | | Type #51 |

## MISCELLANEOUS

| ITEM No. | PART NAME | BROOK PART No. | NOTES |
|---|---|---|---|
| M2 | Rectifier | | Selenium |
| M3 | Rectifier | | Selenium |
| M4 | Crystal | | 1N34 |
| M5 | Crystal | | 1N34 |
| M6 | Switch | | Channel Selector |
| M7 | Switch | | Bass Control |
| M8 | Switch | | Treble |
| M9 | Switch | | Power |
| M10 | Fuse | | AGC .5 Amp. |
| M11 | Fuse | | AGC 3 Amp. |

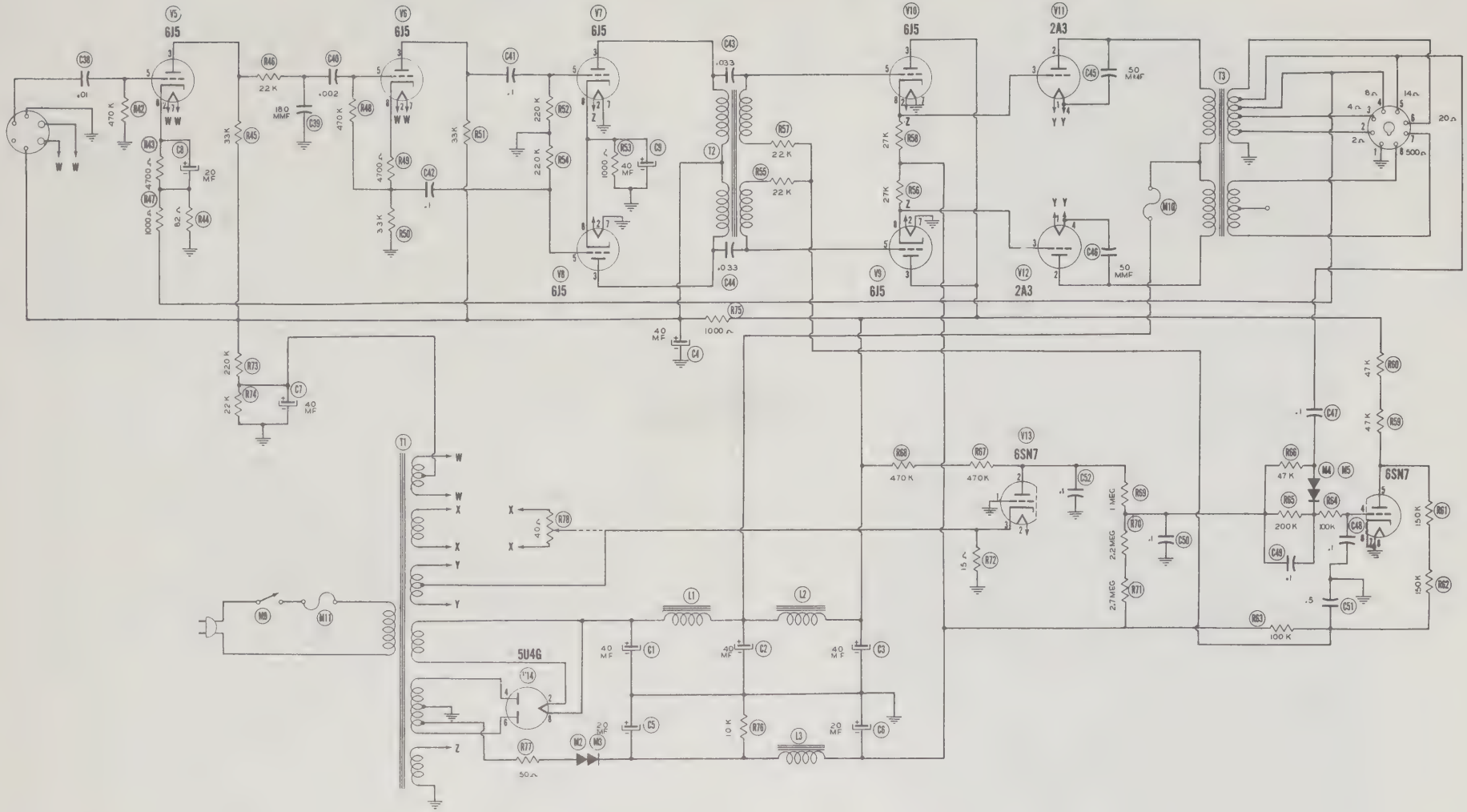
BROOK
MODEL 10C3
PAGE 5




THE COOPERATION OF THE MANUFACTURER OF THIS
EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1949




A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W Sams & Co., Inc. 1949

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6SJ7 | 0V | ♯26VAC | 80VDC | 0V | 2.8VDC | 80VDC | ♯26VAC | 80VDC |
| V 2 | 6SJ7 | 0V | ♯26VAC | 90VDC | 0V | 3.2VDC | 90VDC | ♯26VAC | 90VDC |
| V 3 | 6SJ7 | 0V | ♯26VAC | 67VDC | 0V | 2.5VDC | 67VDC | ♯26VAC | 67VDC |
| V 4 | 6SJ7 | 0V | ♯26VAC | 110VDC | 0V | 4VDC | 110VDC | ♯26VAC | 110VDC |
| V 5 | 6J5 | 0V | ♯26VAC | 260VDC | 0V | 0V | 0V | ♯26VAC | 11VDC |
| V 6 | 6J5 | 0V | ♯26VAC | 265VDC | 0V | 45VDC | 0V | ♯26VAC | 70VDC |
| V 7 | 6J5 | 0V | 6.3VAC | 310VDC | 0V | 0V | 0V | 0V | 11VDC |
| V 8 | 6J5 | 0V | 6.3VAC | 310VDC | 0V | 0V | 0V | 0V | 11VDC |
| V 9 | 6J5 | ♦200VDC | ♯♦200VDC | ♦585VDC | 0V | ♦105VDC | 0V | ♯♦200VDC | ♦125VDC |
| V 10 | 6J5 | | ♯♦200VDC | ♦585VDC | 0V | ♦105VDC | 0V | ♯♦200VDC | ♦125VDC |
| V 11 | 2A3 | ◓1.6VAC | 370VDC | -70VDC | ◓1.6VAC | | | | |
| V 12 | 2A3 | ◓1.6VAC | 370VDC | -70VDC | ◓1.6VAC | | | | |
| V 13 | 6SN7GT | 0V | 26VDC | 1.2VDC | -5VDC | 185VDC | 0V | 0V | 6.3VAC |
| V 14 | 5U4G | 0V | 380VDC | 0V | 290VAC | 0V | 290VAC | 0V | 380VDC |

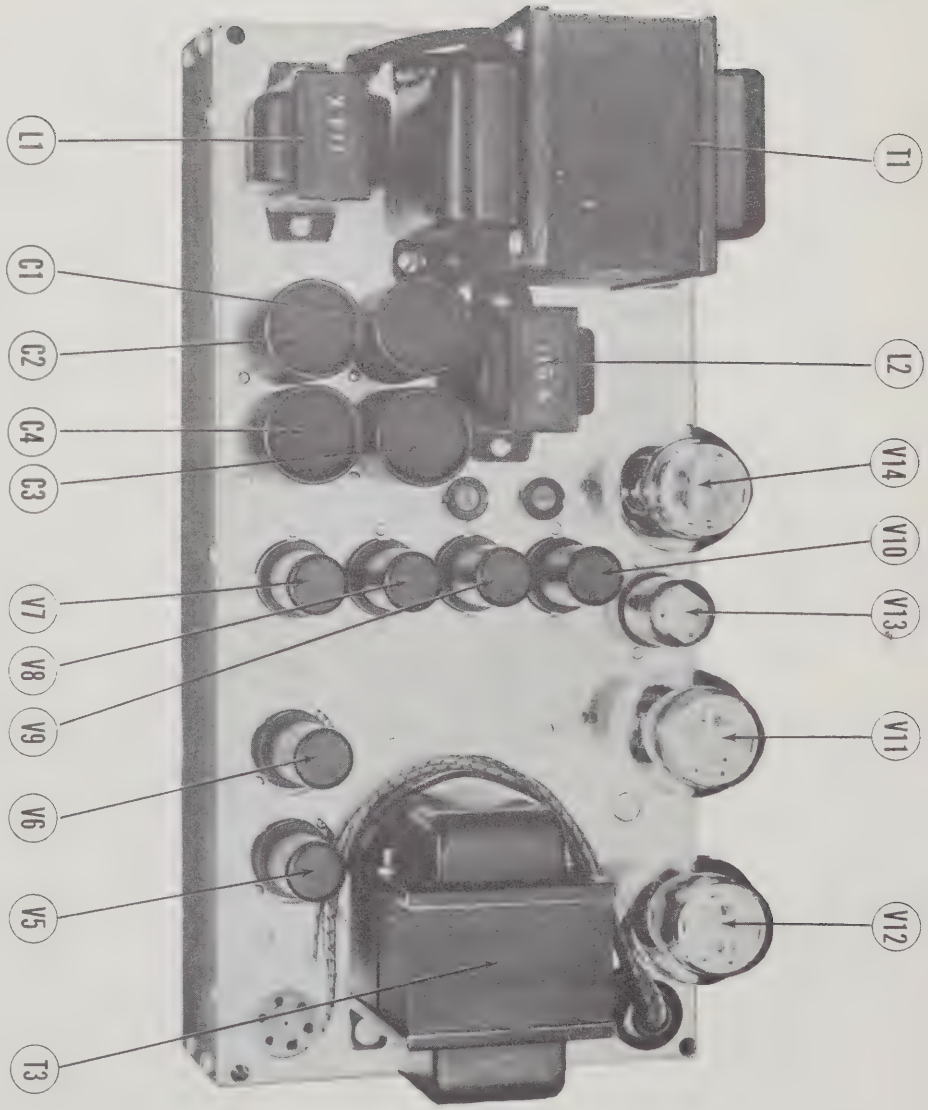
♯ 6.3VAC Measured Across Filaments.
◓ 2.5VAC Measured Across Filaments.
♦ Measured From Output Of M2.

RESISTANCE READINGS

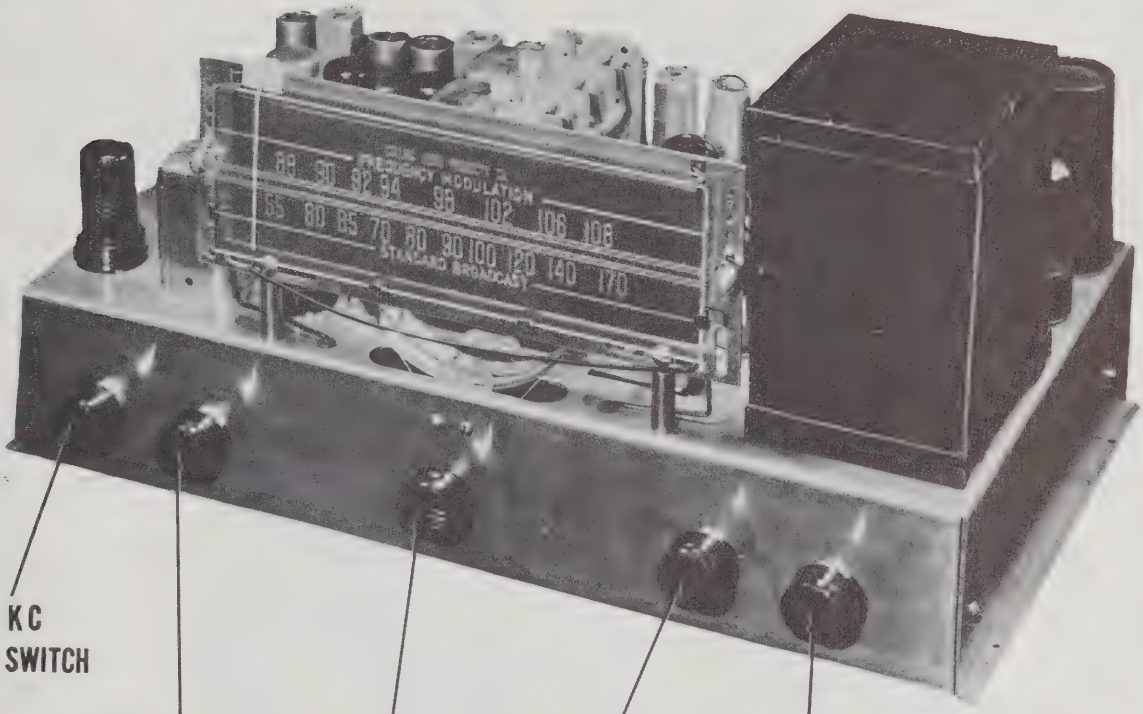
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6SJ7 | 0Ω | 20KΩ | †80KΩ | 470KΩ | 1.5KΩ | †80KΩ | 20KΩ | †80KΩ |
| V 2 | 6SJ7 | 0Ω | 20KΩ | †70KΩ | 470KΩ | 1.5KΩ | †70KΩ | 20KΩ | †70KΩ |
| V 3 | 6SJ7 | 0Ω | 20KΩ | †120KΩ | 2Ω | 1.5KΩ | †120KΩ | 20KΩ | †120KΩ |
| V 4 | 6SJ7 | 0Ω | 20KΩ | †60KΩ | 470KΩ | 1.5KΩ | †60KΩ | 20KΩ | †60KΩ |
| V 5 | 6J5 | 0Ω | 20KΩ | †35KΩ | Inf. | 470KΩ | Inf. | 20KΩ | 4.7KΩ |
| V 6 | 6J5 | 0Ω | 20KΩ | †35KΩ | Inf. | 500KΩ | Inf. | 20KΩ | 37KΩ |
| V 7 | 5J5 | 0Ω | .1Ω | †2.5KΩ | Inf. | 220KΩ | Inf. | 0Ω | 1000Ω |
| V 8 | 6J5 | 0Ω | .1Ω | †2.5KΩ | Inf. | 220KΩ | Inf. | 0Ω | 1000Ω |
| V 9 | 6J5 | 0Ω | .1Ω | †350Ω | Inf. | 120KΩ | Inf. | 0Ω | ♦ 25KΩ |
| V 10 | 6J5 | 0Ω | .1Ω | †350Ω | Inf. | 120KΩ | Inf. | 0Ω | ♦ 25KΩ |
| V 11 | 2A3 | 15Ω | †150Ω | 25KΩ | 15Ω | | | | |
| V 12 | 2A3 | 15Ω | †160Ω | 25KΩ | 15Ω | | | | |
| V 13 | 6SN7GT | 0Ω | †1 Meg | 15Ω | †1.5Meg | †95KΩ | 0Ω | 0Ω | .1Ω |
| V 14 | 5U4G | Inf. | 30KΩ | Inf. | 34Ω | Inf. | 35Ω | Inf. | 30KΩ |

† Measured From Pin 8 Of V14.
♦ Measured From Output Of M2.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.



COLLINS
MODEL 45-D




COLLINS
MODEL 45-D

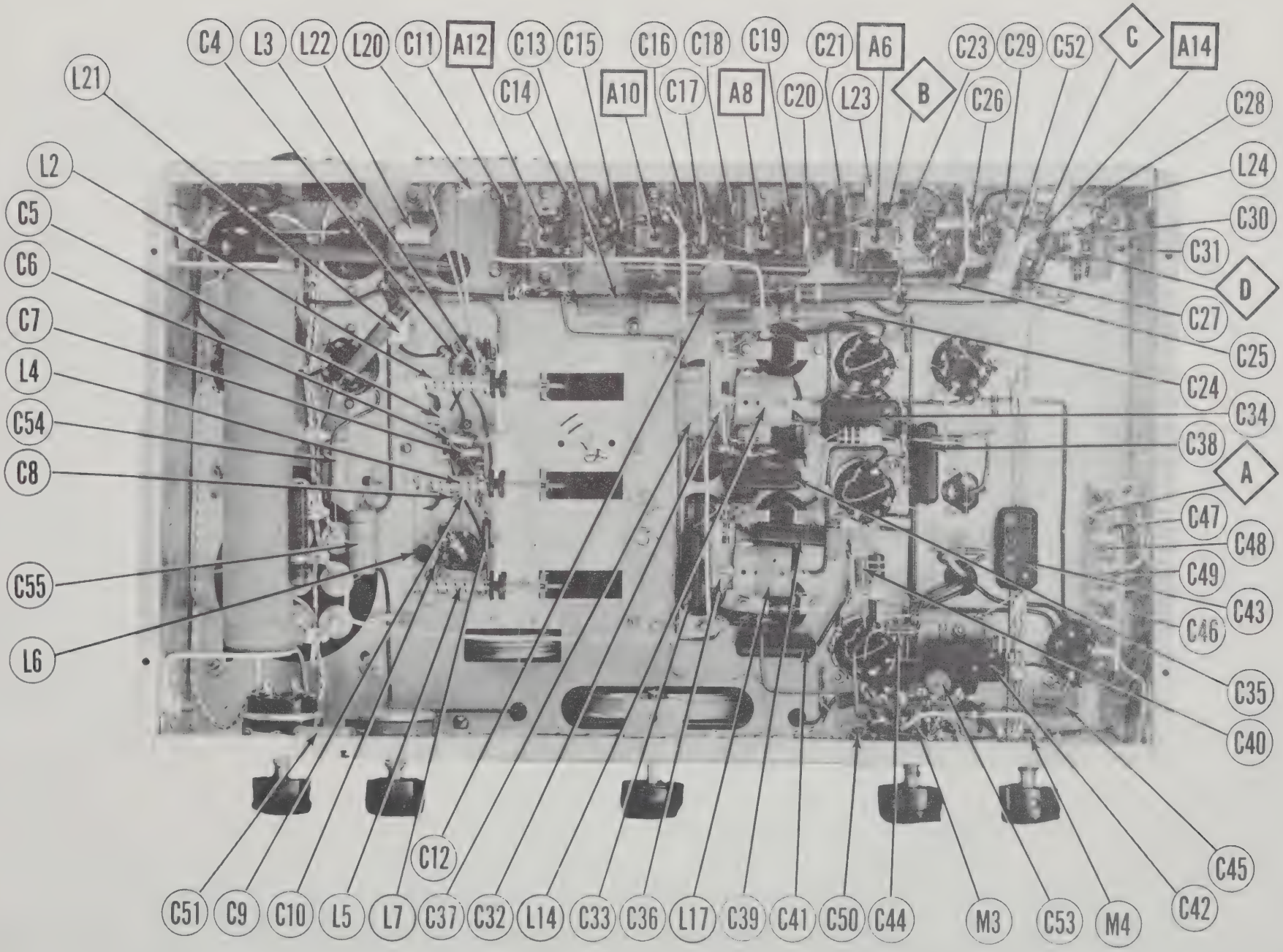
COLLINS MODEL 45-D

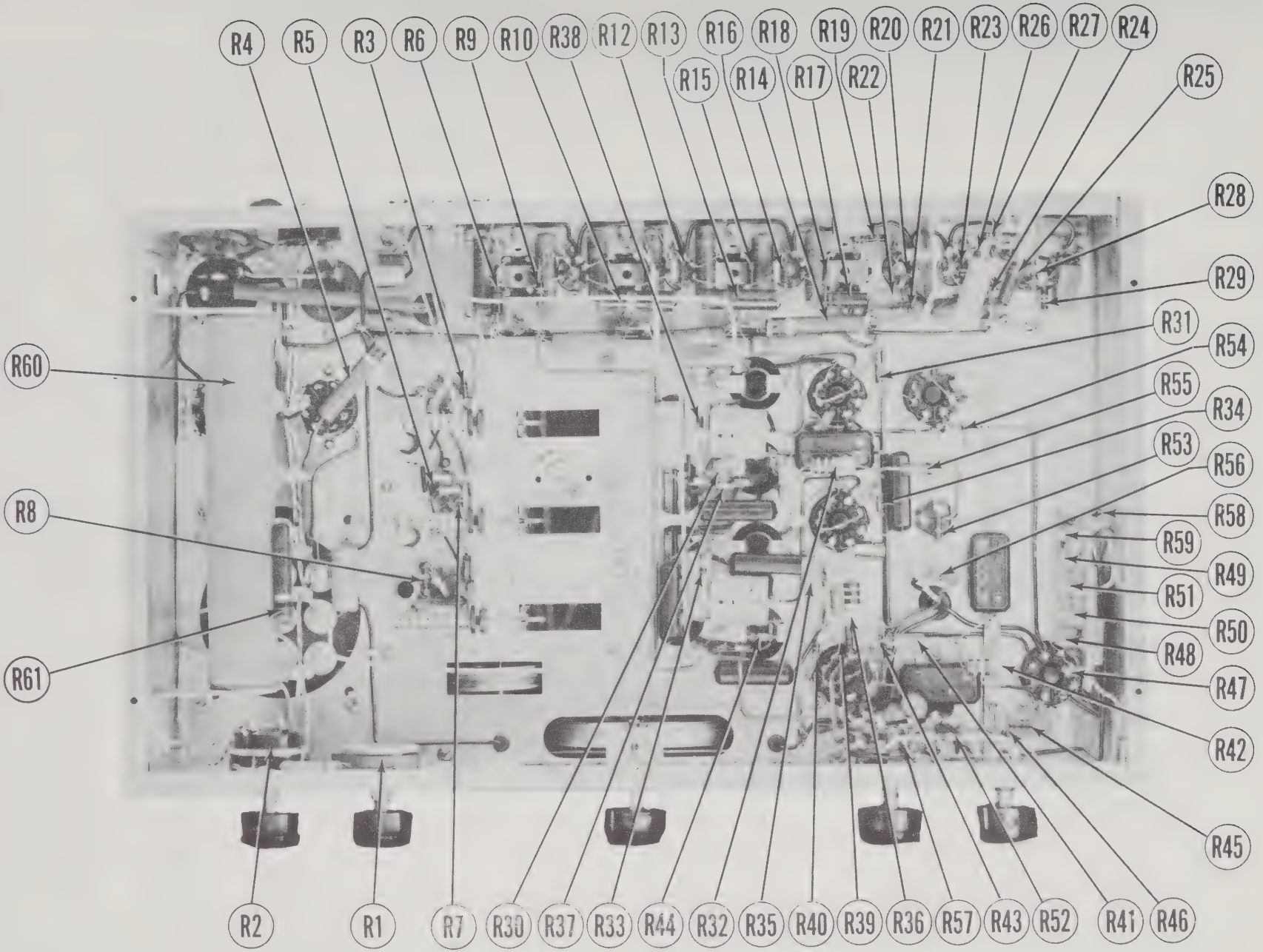
| | |
|---|---|
| TRADE NAME | Collins, Model 45-D |
| MANUFACTURER | Collins Audio Products Co., P.O. Box 368, Westfield, New Jersey |
| TYPE SET | AC Operated AM-FM Tuner with Self Contained Power Supply |
| TUBES(SEVENTEEN) | Types 6J6 FM RF Amp., 6AK5 FM Mixer, 6C4 FM Osc., 6BA6 FM 1st IF Amp., 6AU6 FM 2nd IF Amp., 6AU6 FM 3rd IF Amp., 9001 1st Limiter, 9001 2nd Limiter, 6AL5 Discriminator, 6SK7 AM 1st RF Amp., 6AB7 AM 2nd RF Amp., 6AC7 AM 3rd RF Amp., 6SQ7 DET-AVC-TE Rect., 6J5 AF Amp., 6AL7GT Tuning Ind., VR150 Voltage Regulator, 5Y3GT Rectifier. |
| POWER SUPPLY | 110-120 Volts AC RATING: .98 Amp. @ 117 Volts AC |
| TUNING RANGE-BROADCAST | 540-1700KC FREQ. MOD. 88-108MC |

HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 10/49 SET #72 FOLDER #6


C4
L3
L22
L20
C11
A12
C13
C15
C16
C18
C19
C21
A6
C23
C29
C52
C
A14
L21
C14
A10
C17
A8
C20
L23
B
C26
C28
L2
L24
C5
C30
C6
C31
D
C7
C27
L4
C25
C54
C24
C34
C8
C38
A
C47
C55
C48
C49
C43
L6
C46
C35
C40
C12
C45
C51
C9
C10
L5
L7
C37
C32
L14
C33
C36
L17
C39
C41
C50
C44
M3
C53
M4
C42


R4
R5
R3
R6
R9
R10
R38
R12
R13
R16
R18
R19
R20
R21
R23
R26
R27
R24
R15
R14
R17
R22
R25
R28
R29
R31
R54
R55
R34
R53
R56
R58
R59
R49
R51
R50
R48
R47
R42
R45
R60
R8
R61
R2
R1
R7
R30
R37
R33
R44
R32
R35
R40
R39
R36
R57
R43
R52
R41
R46

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: COLLINS PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| V1 | FM RF Amp. | 6J6 | 6J6 | 7BF | |
| V2 | FM Mixer | 6AK5 | 6AK5 | 7BD | |
| V3 | FM Osc. | 6C4 | 6C4 | 6BG | |
| V4 | FM 1st IF Amp. | 6BA6 | 6BA6 | 7BK | |
| V5 | FM 2nd IF Amp. | 6AU6 | 6AU6 | 7BK | |
| V6 | FM 3rd IF Amp. | 6AU6 | 6AU6 | 7BK | |
| V7 | 1st Limiter | 9001 | 9001 | 7PM | |
| V8 | 2nd Limiter | 9001 | 9001 | 7PM | |
| V9 | Discriminator | 6AL5 | 6AL5 | 6BT | |
| V10 | AM 1st RF Amp. | 6SK7 | 6SK7 | 8N | |
| V11 | AM 2nd RF Amp. | 6AB7 | 6AB7 | 8N | |
| V12 | AM 3rd RF Amp. | 6AC7 | 6AC7 | 8N | |
| V13 | DET-AVC-T.E. Rect. | 6SQ7 | 6SQ7 | 8Q | |
| V14 | AF Amp. | 6J5 | 6J5 | 6Q | |
| V15 | Tuning Indicat-or | 6AL7GT | 6AL7GT | 8CH | |
| V16 | Voltage Regulator | VR150 | VR150 | | |
| V17 | Rectifier | 5Y3GT | 5Y3GT | 5T | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: COLLINS PART No. | REPLACEMENT DATA: AEROVOX PART No. | REPLACEMENT DATA: CORNELL-DUBILIER PART No. | REPLACEMENT DATA: ERIE PART No. | REPLACEMENT DATA: SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1A | 40 | 450 | | AF88J | UP4445 | | EL-240 | ▲ Filter |
| B | 40 | 450 | | | | | | ■ Filter |
| C2 | 80 | 150 | | AF20D | UP8015 | | TVL-1 | Filter |
| C3A | 30 | 450 | | AF6J | UP3045 | | EL-3 | ■ AF Plate Decoupling |
| B | 40 | 25 | | PR325/50 | BR502 | | TA-50 | ▲ AF Cath. Bypass |
| C4 | 750 | | | 1468-00075 | 1W5T8 | GP2K-750 | 1FM-21 | RF Bypass Note 1 |
| C5 | 12 | | | 1468-00001 | | GP1K-15 | MS-415 | RF Coupling |
| C6 | 750 | | | 1468-00075 | 1W5T8 | GP2K-750 | 1FM-21 | Mixer Cath. Bypass Note 1 |
| C7 | 750 | | | 1468-00075 | 1W5T8 | GP2K-750 | 1FM-21 | Mixer Screen Bypass Note 1 |
| C8 | .68 | | | | | | | Osc. Coupling |
| C9 | 750 | | | 1468-00075 | 1W5T8 | GP2K-750 | 1FM-21 | RF Bypass Note 1 |
| C10 | 19 | | | 1468-000025 | 5W5Q2 | GP1K-25 | MS-42 | Osc. Grid Cap |
| C11 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Mixer Plate Decoupling |
| C12 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | RF Bypass |
| C13 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | AVC Filter |
| C14 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | AVC Filter |
| C15 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | FM 1st IF Decoupling |
| C16 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | FM 2nd IF Cath. Bypass |
| C17 | 750 | | | 1468-00075 | 1W5T8 | GP2K-750 | 1FM-21 | FM 2nd IF Cath. Bypass Note 2 |
| C18 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | FM 2nd IF Decoupling |
| C19 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | FM 3rd IF Cath. Bypass |
| C20 | 750 | | | 1468-00075 | 1W5T8 | GP2K-750 | 1FM-21 | FM 3rd IF Cath. Bypass Note 2 |
| C21 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | FM 3rd IF Decoupling |
| C22 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Decoupling Note 2 |
| C23 | 51 | | | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | 1st Limiter Grid Filter |
| C24 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | AVC Filter Note 2 |
| C25 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | 1st Limiter Screen Bypass |
| C26 | 25 | | | 1468-000025 | 5W5Q25 | GP1K-25 | MS-425 | IF Coupling |
| C27 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | 2nd Limiter Screen Bypass |
| C28 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | 2nd Limiter Plate Dec. |
| C29 | 51 | | | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | RF Bypass |
| C30 | 51 | | | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | RF Bypass |
| C31 | 150 | 500 | | 1468-00015 | 5W5T15 | GP2K-150 | 1FM-315 | De-emphasis Note 3 |
| C32 | .02 | 400 | | P488-02 | GT4S2 | | TM-12 | AVC Filter |
| C33 | .1 | 400 | | P488-1 | GT4P1 | | TM-1 | AVC Filter |
| C34 | .1 | 400 | | P488-1 | GT4P1 | | TM-1 | AM 1st RF Screen Bypass |
| C35 | .1 | 400 | | P488-1 | GT4P1 | | TM-1 | AM 1st RF Plate Decoupling |
| C36 | .02 | 400 | | P488-02 | GT4S2 | | TM-12 | AVC Filter |

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: COLLINS PART No. | REPLACEMENT DATA: IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R23 | 100KΩ | ½ | | BTS-100K | 2nd Limiter Grid |
| R24 | 20KΩ | ½ | | BTS-22K | 2nd Limiter Screen |
| R25 | 1500Ω | 1 | | BTA-1500 | 2nd Limiter Plate Decoupling |
| R26 | 20KΩ | ½ | | BTS-22K | Voltage Divider |
| R27 | 100KΩ | ½ | | BTS-100K | Disc. Diode Load |
| R28 | 100KΩ | ½ | | BTS-100K | Balancing |
| R29 | 100KΩ | ½ | | BTS-100K | De-emphasis |
| R30 | 100KΩ | ½ | | BTS-100K | AM 1st RF Grid |
| R31 | 62KΩ | ½ | | BTS-68K | AM 1st RF Screen Decoupling |
| R32 | 2000Ω | 1 | | BTA-2200 | AM 1st RF Plate Decoupling |
| R33 | 100KΩ | ½ | | BTS-100K | AM 2nd RF Grid |
| R34 | 62KΩ | ½ | | BTS-68K | AM 2nd RF Screen Decoupling |
| R35 | 10KΩ | 1 | | BTA-10K | AM 2nd RF Plate |
| R36 | 2000Ω | 1 | | BTA-2200 | AM 2nd RF Plate Decoupling |
| R37 | 100KΩ | ½ | | BTS-100K | AVC Network |
| R38 | 2.2 Meg | ½ | | BTS-2.2 Meg | AVC Network |
| R39 | 10KΩ | ½ | | BTS-10K | 3rd AM RF Grid |
| R40 | 220KΩ | ½ | | BTS-220K | 3rd AM RF Grid |
| R41 | 10KΩ | 1 | | BTA-10K | 3rd AM RF Plate |
| R42 | 2000Ω | 1 | | BTA-2200 | 3rd AM RF Plate Decoupling |
| R43 | 62KΩ | ½ | | BTS-68K | 3rd AM RF Screen Decoupling |
| R44 | 100KΩ | ½ | | BTS-100K | AVC Network |
| R45 | 10KΩ | ½ | | BTS-10K | Diode Filter |
| R46 | 20KΩ | ½ | | BTS-22K | Diode Filter |
| R47 | 62KΩ | ½ | | BTS-68K | Diode Load |
| R48 | 39KΩ | ½ | | BTS-39K | Diode Load |
| R49 | 2.2 Meg. | ½ | | BTS-2.2 Meg | Tuning Eye Rect. Grid |
| R50 | 15KΩ | ½ | | BTS-15K | Tuning Eye Rect. Cathode |
| R51 | 39KΩ | ½ | | BTS-39K | Tuning Eye Rect. Cathode |
| R52 | 1 Meg. | ½ | | BTS-1 Meg. | Tone Compensation |
| R53 | 2200Ω | ½ | | BTS-2200 | AF Cathode |
| R54 | 100KΩ | ½ | | BTS-100K | AF Plate |
| R55 | 30KΩ | 1 | | BT-1-33K | Filter |
| R56 | 3300Ω | ½ | | BTS-3300 | Tuning Eye Cathode |
| R57 | 1 Meg. | ½ | | BTS-1 Meg. | Tuning Eye Filter Network |
| R58 | 500KΩ | ½ | | BTS-470K | Tuning Eye Filter Network |
| R59 | 1 Meg. | ½ | | BTS-1 Meg. | Tuning Eye Filter Network |
| R60A | 250Ω | | | DG-250 | Voltage Divider Wire Wound # |
| B | 2200Ω | | | DG-2250 | Voltage Divider Wire Wound |
| C | 25KΩ | 100 | | DG-25K | Voltage Divider Wire Wound |
| D | 50Ω | | | AB-50 | Bias Network Wire Wound |
| E | 650Ω | | | DG-650 | Bias Network Wire Wound |
| R61 | 50Ω | 2 | | BW-2-47 | Bias Network Wire Wound |

# This Section Not Used.

## TRANSFORMER (POWER)

| ITEM No. | RATING: PRI. | RATING: SEC. 1 | RATING: SEC. 2 | RATING: SEC. 3 | REPLACEMENT DATA: COLLINS PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: CHICAGO PART No. | REPLACEMENT DATA: MERIT PART No. |
|---|---|---|---|---|---|---|---|---|
| T1 | 117VAC @ .98A | 740VCT @ .128A DC | 5VAC @ 2A | 6.3VAC @ 2.8A | | P-6143†† | PV-145 | P-3155†† |

†† Add Series Resistor To Reduce Plate Voltage.

## FILTER CHOKE

| ITEM No. | RATINGS: TOTAL DIRECT CURRENT | RATINGS: D. C. RESISTANCE | RATINGS: INDUCTANCE (0 CURRENT 1000 ∿) | REPLACEMENT DATA: COLLINS PART No. | REPLACEMENT DATA: STANCOR PART No. | REPLACEMENT DATA: CHICAGO PART No. | REPLACEMENT DATA: MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| L1 | .128A | 220Ω | 6 Henries | | | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA COLLINS PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C37 | .2 | 400 | | P488-22 | GT4P2 | | TC-2 | AVC Filter |
| C38 | .1 | 400 | | P488-1 | GT4P1 | | TM-1 | AM 2nd RF Screen Bypass |
| C39 | .1 | 400 | | P488-1 | GT4P1 | | TM-1 | AM 2nd RF Plate Dec. |
| C40 | 51 | | | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | RF Coupling |
| C41 | .1 | 400 | | P488-1 | GT4P1 | | TM-1 | AVC Filter |
| C42 | .1 | 400 | | P488-1 | GT4P1 | | TM-1 | AM 3rd IF Screen Bypass |
| C43 | .1 | 400 | | P488-1 | GT4P1 | | TM-1 | AM 3rd IF Plate Dec. |
| C44 | 51 | | | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | RF Coupling |
| C45 | 150 | 500 | | 1468-00015 | 5W5T15 | GP2K-150 | 1FM-315 | Diode RF Filter Note 4 |
| C46 | 150 | 500 | | 1468-00015 | 5W5T15 | GP2K-150 | 1FM-315 | Diode RF Filter Note 4 |
| C47 | .2 | 400 | | P488-22 | GT4P2 | | TC-2 | RF Bypass |
| C48 | .2 | 400 | | P488-22 | GT4P2 | | TC-2 | Tuning Ind. Filter |
| C49 | .01 | 400 | | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Tuning Ind. Filter |
| C50 | .02 | 400 | | P488-02 | GT4S2 | | TM-12 | Audio Coupling |
| C51 | .05 | 400 | | P488-05 | GT4S5 | | TM-15 | Tone Compensation |
| C52 | .02 | 400 | | P488-02 | GT4S2 | | TM-12 | Audio Coupling Note 5 |
| C53 | .05 | 400 | | P488-05 | GT4S5 | | TM-15 | Tuning Ind. Filter |
| C54 | .05 | 600 | | P688-05 | GT6S5 | | TM-15 | Line Filter |
| C55 | .05 | 600 | | P688-05 | GT6S5 | | TM-15 | Line Filter |

Note 1. Some Models Use 1000MMF In This Application.
Note 2. Not Used In All Models.
Note 3. Some Models Use 220MMF In This Application.
Note 4. Some Models Use 100MMF In This Application.
Note 5. Some Models Use .01MFD In This Application.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA COLLINS PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| R1 | 1 Meg. | ½ | | Q13-137 | M-63-Z | Volume control |
| R2A | 100KΩ | ½ | | Q13-128 | M-51-Z | Tone control |
| B | Switch | | | 76-1 | SW-A | Attach to R2A per instructions |

## RESISTORS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA COLLINS PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R3 | 1000Ω | ½ | | BTS-1000 | FM RF Cathode |
| R4 | 5000Ω | 2 | | BT-2-4700 | Decoupling |
| R5 | 560Ω | ½ | | BTS-560 | Mixer Cathode |
| R6 | 43KΩ | 1 | | BTA-47K | Mixer Plate Decoupling 5% |
| R7 | 39KΩ | ½ | | BTS-39K | Mixer Screen |
| R8 | 22KΩ | ½ | | BTS-22K | Osc. Grid |
| R9 | 100KΩ | ½ | | BTS-100K | FM 1st IF Grid |
| R10 | 10KΩ | 2 | | BT-2-10K | FM 1st IF Decoupling |
| R11 | 3300Ω | ½ | | BTS-3300 | FM 2nd IF Transformer Shunt |
| R12 | 120Ω | ½ | | BW-½-120 | FM 2nd IF Cathode |
| R13 | 10KΩ | 2 | | BT-2-10K | FM 2nd IF Decoupling |
| R14 | 5000Ω | 2 | | BT-2-4700 | Voltage Dropping |
| R15 | 3300Ω | ½ | | BTS-3300 | FM 3rd IF Transformer Shunt |
| R16 | 120Ω | ½ | | BW-½-120 | FM 3rd IF Cathode |
| R17 | 1500Ω | 1 | | BTA-1500 | FM 3rd IF Decoupling |
| R18 | 2.2 Meg | ½ | | BTS-2.2 Meg | AVC Network |
| R19 | 50KΩ | ½ | | BTS-47K | 1st Limiter Grid |
| R20 | 20KΩ | ½ | | BTS-22K | Voltage Divider |
| R21 | 20KΩ | ½ | | BTS-22K | 1st Limiter Screen |
| R22 | 10KΩ | 1 | | BTA-10K | 1st Limiter Plate |

DATE 10/49 SET #72 FOLDER #6

# PARTS LIST AND DESCRIPTIONS (Continued)

## R F COILS

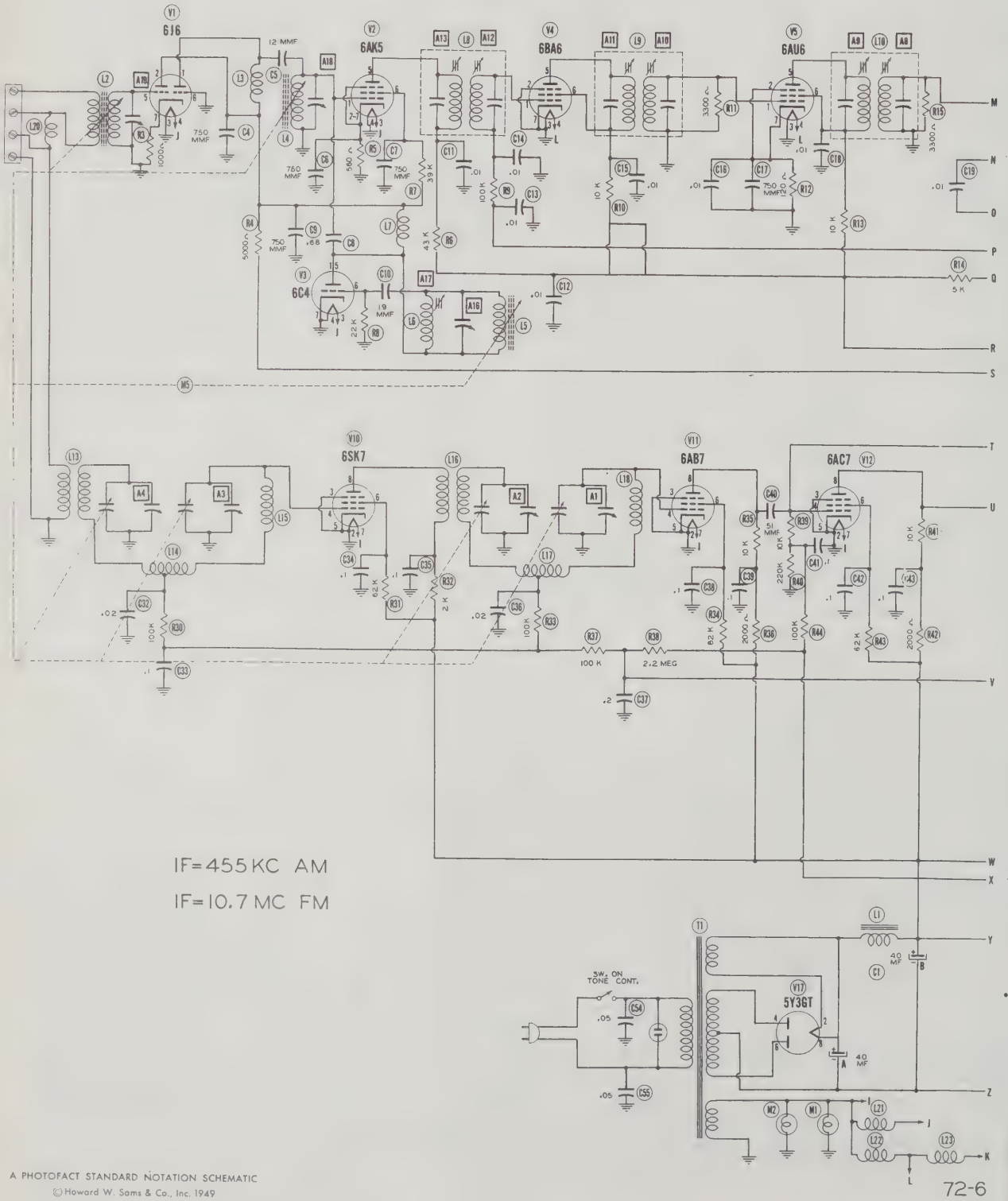
| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA COLLINS PART No. | REPLACEMENT DATA MEISSNER PART No. | |
|---|---|---|---|---|---|---|
| L2 | FM Ant.Coil | 0Ω | | | | |
| L3 | RF Choke | 0Ω | | | | |
| L4 | FM Mixer Grid Coil | 0Ω | | | | |
| L5 | FM Osc.Coil | 0Ω | | | | |
| L6 | FM Osc. Shunt | 0Ω | | | | |
| L7 | RF Choke | 0Ω | | | | |
| L8 | FM 1st IF | .5Ω | .5Ω | | | |
| L9 | FM 2nd IF | .5Ω | .5Ω | | | |
| L10 | FM 3rd IF | .5Ω | .5Ω | | | |
| L11 | FM 4th IF | .5Ω | .5Ω | | | |
| L12 | Disc. Trans | .5Ω | .5Ω | | | |
| L13 | AM Ant.Coil | 27Ω | 4Ω | | | |
| L14 | Coupling Coil | .25Ω | .25Ω | | | .5Ω Resistance Across Complete Coil. |
| L15 | 1st RF Grid Coil | 3.8Ω | | | | |
| L16 | 1st RF Plate Coil | 73Ω | 4Ω | | | |
| L17 | Coupling Coil | .25Ω | .25Ω | | | .5Ω Resistance Across Complete Coil. |
| L18 | 2nd RF Grid Coil | 3.8Ω | | | | |
| L19 | 10KC Filter | 190Ω | | | | |
| L20 | RF Choke | 0Ω | | | | |
| L21 | Filament Choke | 0Ω | | | | |
| L22 | Filament Choke | 0Ω | | | | |
| L23 | Filament Choke | 0Ω | | | | |
| L24 | Filament Choke | 0Ω | | | | |

## DIAL LIGHTS

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA COLLINS PART No. | | NOTES |
|---|---|---|---|---|---|---|---|
| M1 | Screw | 6-8 | .15 | Brown | | | Type #40 |
| M2 | Screw | 6-8 | .15 | Brown | | | Type #40 |

## MISCELLANEOUS

| ITEM No. | PART NAME | COLLINS PART No. | NOTES |
|---|---|---|---|
| M3 | Switch | | Band |
| M4 | Switch | | Filter |
| M5 | 4 Gang Var.Cap. | | (35-401MMF) Each Section |

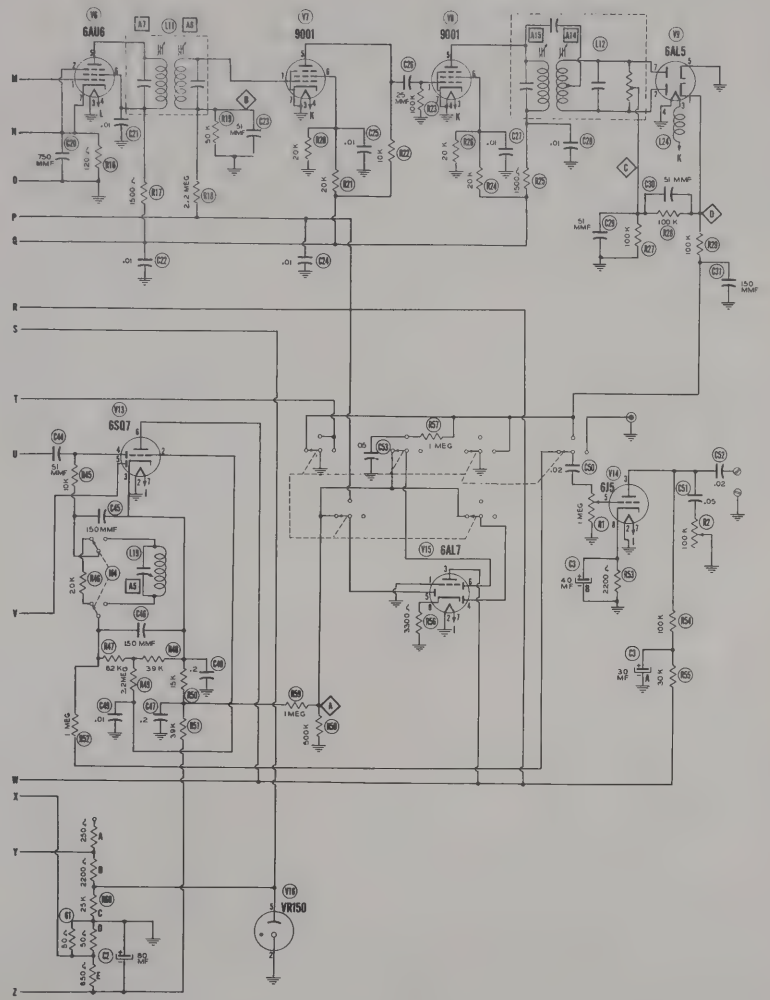



IF=455 KC AM

IF=10.7 MC FM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1949




A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1949



VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| ǂV1 | 6J6 | 110VDC | 110VDC | 6.3VAC | 0V | 0V | 0V | 3.4VDC | |
| ǂV2 | 6AK5 | 0V | 1VDC | 6.3VAC | 0V | 125VDC | 77VDC | 1VDC | |
| ǂV3 | 6C4 | 95VDC | 0V | 6.3VAC | 0V | 95VDC | 4-5.8 VDC | 0V | |
| ǂV4 | 6BA6 | -.8VDC | 0V | 0V | 6.3VAC | 95VDC | 95VDC | 0V | |
| ǂV5 | 6AU6 | 0V | 0V | 0V | 6.3VAC | 125VDC | 125VDC | 1.2VDC | |
| ǂV6 | 6AU6 | 0V | 0V | 0V | 6.3VAC | 120VDC | 125VDC | 1VDC | |
| ǂV7 | 9001 | -.1VDC | 0V | 0V | 6.3VAC | 115VDC | 67VDC | 0V | |
| ǂV8 | 9001 | -.4VDC | 0V | 6.3VAC | 0V | 140VDC | 70VDC | 0V | |
| ǂV9 | 5AL5 | .4VDC | 0V | 6.3VAC | 0V | 0V | 0V | -11.5VDC | |
| V 10 | 6SK7 | 0V | 0V | 0V | -.5VDC | 0V | 95VDC | 6.3VAC | 225VDC |
| V 11 | 6AB7 | 0V | 0V | 0V | -.3VDC | 0V | 150VDC | 6.3VAC | 185VDC |
| V 12 | 6AC7 | 0V | 0V | 0V | -1.4VDC | 0V | 135VDC | 6.3VAC | 157VDC |
| V 13 | 6SQ7 | 0V | 0V | 37VDC | 35VDC | -.4VDC | 250VDC | 6.3VAC | 0V |
| V 14 | 6J5 | 0V | 0V | 75VDC | 0V | 0V | 75VDC | 6.3VAC | 2.9VDC |
| V 15 | 6AL7GT | 0V | 0V | 250VDC | .5VDC | .5VDC | .5VDC | 6.3VAC | 1.2VDC |
| V 16 | VR150 | 0V | 0V | 0V | 0V | 160VDC | 0V | 0V | 0V |
| V 17 | 5Y3GT | 0V | 275VDC | 0V | 360VAC | 0V | 360VAC | 0V | 275VDC |

RESISTANCE READINGS

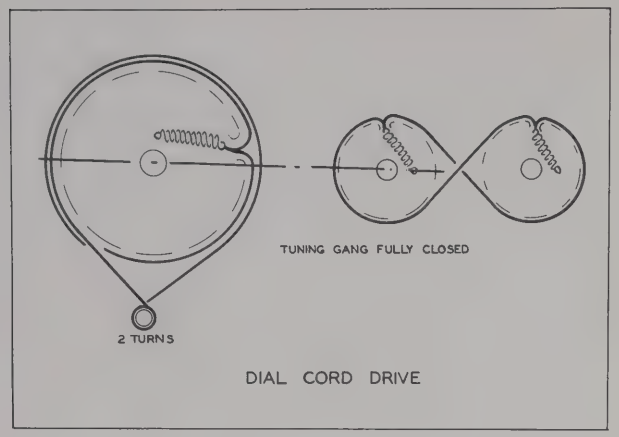
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| ǂV1 | 6J6 | †7KΩ | †7KΩ | .1Ω | 0Ω | 0Ω | 0Ω | 1000Ω | |
| ǂV2 | 6AK5 | 0Ω | 600Ω | .1Ω | 0Ω | †43KΩ | †43KΩ | 600Ω | |
| ǂV3 | 6C4 | †7KΩ | Inf. | .1Ω | 0Ω | †7KΩ | 22KΩ | 0Ω | |
| ǂV4 | 6BA6 | 2.2 Meg | 0Ω | 0Ω | .1Ω | †11KΩ | †11KΩ | 0Ω | |
| ǂV5 | 6AU6 | 1Ω | 0Ω | 0Ω | .1Ω | †11KΩ | †11KΩ | 120Ω | |
| ǂV6 | 6AU6 | 1Ω | 0Ω | 0Ω | .1Ω | †6.5KΩ | †6.5KΩ | 120Ω | |
| ǂV7 | 9001 | 47KΩ | 0Ω | 0Ω | .1Ω | †15KΩ | †15KΩ | 0Ω | |
| ǂV8 | 9001 | 100KΩ | 0Ω | .1Ω | 0Ω | †6.5KΩ | †15KΩ | 0Ω | |
| ǂV9 | 6AL5 | 200KΩ | 100KΩ | .1Ω | 0Ω | 0Ω | 0Ω | 100KΩ | |
| V 10 | 6SK7 | 0Ω | 0Ω | 0Ω | 2.4 Meg | 0Ω | †62KΩ | .1Ω | †2.5KΩ |
| V 11 | 6AB7 | 0Ω | 0Ω | 0Ω | 2.4 Meg | 0Ω | †62KΩ | .1Ω | †12KΩ |
| V 12 | 6AC7 | 0Ω | 0Ω | 0Ω | 80KΩ | 0Ω | †62KΩ | .1Ω | †12KΩ |
| V 13 | 6SQ7 | 0Ω | 2.5 Meg | 55KΩ | 190KΩ | 2.2 Meg | †220Ω | .1Ω | 0Ω |
| V 14 | 6J5 | 0Ω | 0Ω | †130KΩ | Inf. | 1Ω | †130KΩ | .1Ω | 2.2KΩ |
| V 15 | 6AL7GT | 0Ω | 0Ω | †220Ω | 300KΩ | 300KΩ | 300KΩ | .1Ω | 3.3KΩ |
| V 16 | VR150 | Inf. | 0Ω | Inf. | Inf. | †2.5KΩ | Inf. | Inf. | Inf. |
| V 17 | 5Y3GT | Inf. | 12KΩ | Inf. | 740Ω | Inf. | 750Ω | Inf. | 12KΩ |

† Measured From Pin 8 Of V17.

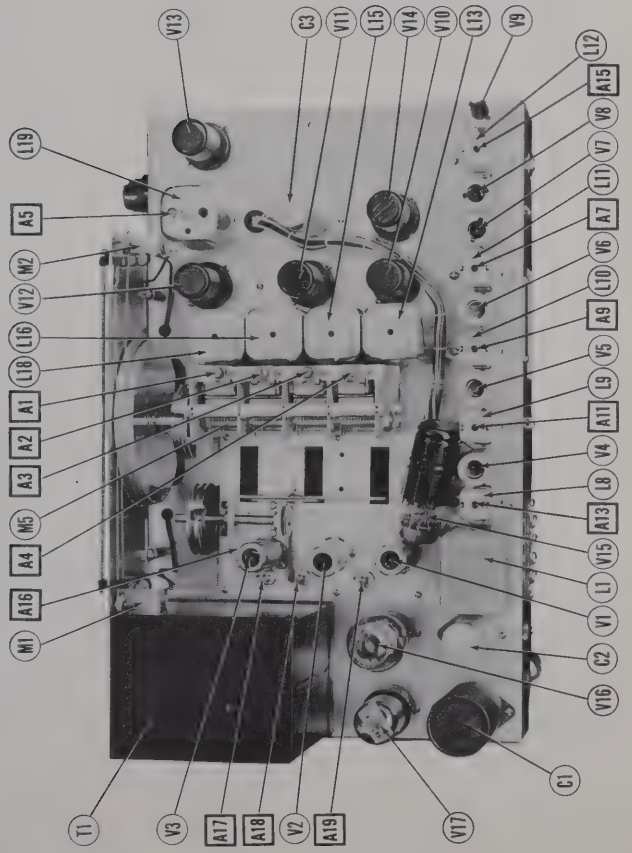
§TAKEN WITH VACUUM TUBE VOLTMETER.

ǂ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.




DIAL CORD DRIVE




DATE 10/49 SET #72 FOLDER #6

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

**AM ALIGNMENT**

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | 200MMF | High to terminal 3 of antenna terminal strip. Low side to terminal 4. | 1400KC | AM (extreme counter clockwise) | 1400KC | DC Probe to Point ◇ C mmn. to chassis. | A1,A2, A3,A4 | Adjust for maximum deflection. |
| 2. | 200MMF | " | 600KC | " | 600KC | " | | If necessary, slightly retouch A1, A2, A3, and A4 for maximum deflection. |
| 3. | If adjacent channel interference is encountered, switch in 10KC filter and adjust A5 for minimum whistle at the point of interference. | | | | | | | |

**FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM**

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4. | .05MFD | High side to pin 1 (Grid) of 6AU6 (V6). Low side to chassis. | 10.7MC (Unmod.) | FM (center pos.) | Point of non interference | DC Probe to Point ◇ Common to chassis. | A6,A7 | Adjust for maximum deflection. |
| 5. | .05MFD | High side to pin 1 (Grid) of 6AU6 (V5). Low side to chassis. | " | " | " | " | A8, A9 | " |
| 6. | .05MFD | High side to pin 1 (Grid) of 6BA6 (V4). Low side to chassis. | " | " | " | " | A10, A11 | " |
| 7. | .05MFD | High side to pin 2 (Cathode) of 6AK5 (V2). Low side to chassis. | " | " | " | " | A12, A13 | " |
| 8. | .05MFD | " | " | " | " | DC Probe to Point ◇ Common to chas. | A14 | Adjust for maximum deflection. |
| 9. | .05MFD | " | " | " | " | DC Probe to Point ◇ Common to chassis. | A15 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

**FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE**

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4. | .05MFD | High side to pin 1 (Grid) of 6AU6 (V6). Low side to chassis. | 10.7MC (450KC Sweep) | FM | Point of non interference | Vert.Amp. to Point ◇ Low side to chassis. | A6,A7 | Adjust for maximum amplitude and symmetry as per Fig 1. |
| 5. | .05MFD | High side to pin 1 ( Grid) of 6AU6 (V5). Low side to chassis. | " | " | " | " | A8,A9 | " |
| 6. | .05MFD | High side to pin 1 (Grid) of 6BA6 (V4). Low side to chassis. | " | " | " | " | A10, A11 | " |
| 7. | .05MFD | High side to pin 2 (Cathode) of 6AK5 (V2). Low side to chassis. | " | " | " | " | A12, A13 | " |
| 8. | .05MFD | High side to pin 1 (Grid) of 9001 (V7). Low side to chassis. | " | " | " | Vert.Amp. to Point ◇ Low side to chassis. | A14, A15 | Adjust A14 for maximum amplitude and straightness of crossover lines. Adjust A15 so crossover occurs at center of pattern as per Fig 2. Continue with step 10. |

**FM RF ALIGNMENT**

The main tuning slugs are pre-set at the factory and are normally very stable and do not require adjustment.

Should adjustment of these be necessary, merely adjust them so they all enter their respective coil forms at the same time.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 10. | Two 125Ω carbon res. | Across terminals 1 and 2 of ant. terminal strip with 125Ω resistor in each generator lead. | 88MC | FM | 88MC | DC Probe to Point ◇ Common to chassis. | A16 | Adjust for maximum deflection. |
| 11. | " | " | 108MC | " | 108MC | " | A17 | Adjust for maximum deflection. Repeat steps 10 and 11 until no further improvement can be made. |
| 12. | " | " | 88MC | " | 88MC | " | A18 | Adjust for maximum deflection. |
| 13. | " | " | 108MC | " | 108MC | " | A19 | Adjust for maximum deflection. Repeat step 12. |

FIG. 1

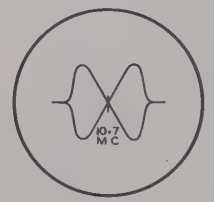
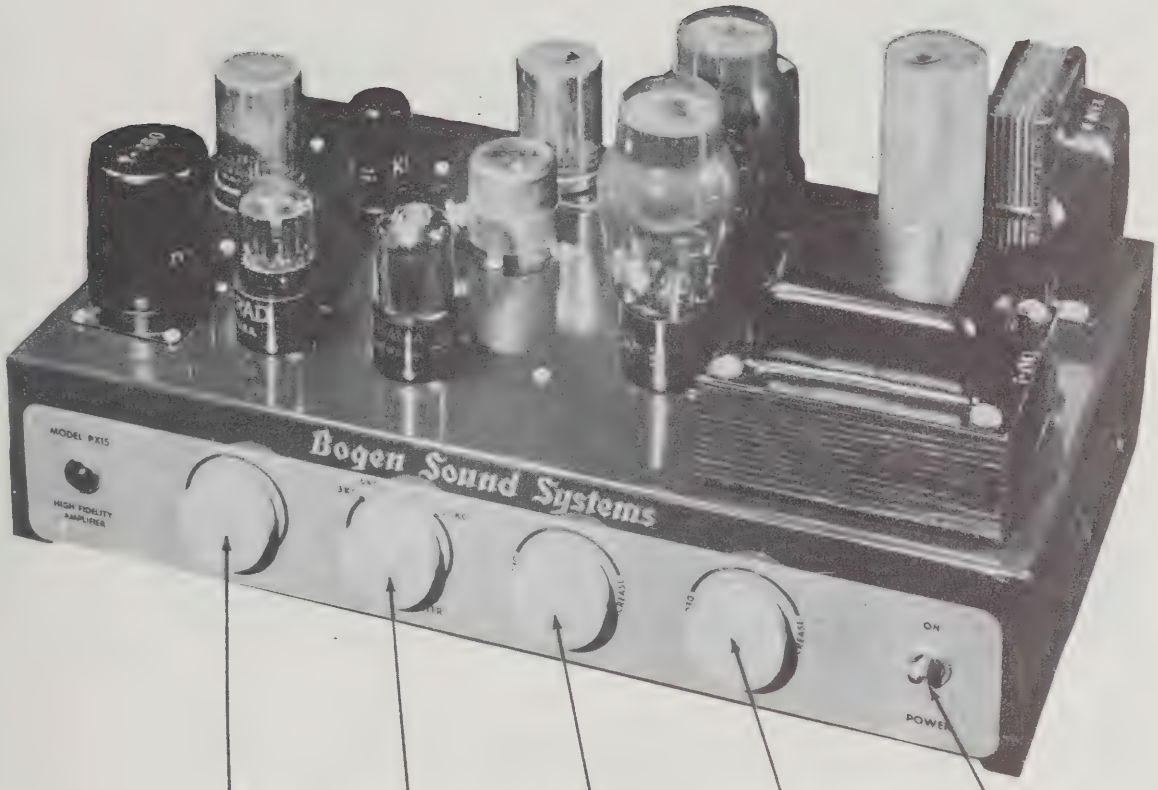



FIG. 2

DAVID BOGEN
MODEL PX15




DAVID BOGEN
MODEL PX15

DAVID BOGEN MODEL PX15

| | |
|---|---|
| **TRADE NAME** | David Bogen, Model PX15 |
| **MANUFACTURER** | David Bogen Co., Inc., 663 Broadway, New York 12, N.Y. |
| **TYPE SET** | AC Operated Audio Amplifier. |
| **TUBES** (SIX) | Types 12SJ7 Pre Amp., 12AH7GT 1st AF Amp., 6SL7GT 2nd AF-Phase Inverter, (2) 6L6G Power Output, 5Y3GT Rectifier. |
| **POWER SUPPLY** | 110-120 Volts AC — RATING .97 Amp. @ 117 Volts AC |

INPUT CONNECTIONS

Two input connectors are provided. The connector marked "AMPLIFIER INPUT" is used with crystal phonograph pickups. It may also be used as a connection for a radio tuner. The radio output can be taken from the detector or from the voice coil leads. If both radio and phonograph are to be used, connect a single pole double throw switch so that one may select between radio and phonograph. The connector marked "PREAMP. INPUT" is used with low output phonograph pickups. When this connector is used the "PREAMP. OUTPUT" and "AMPLIFIER INPUT" connectors must be connected together by means of the short shielded lead provided with the amplifier.

**HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 10/49 SET #72 FOLDER #7

# PARTS LIST AND DESCRIPTIONS

DAVID BOGEN
MODEL PX15

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: DAVID BOGEN PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| V1 | Pre Amp. | 12SJ7 | 12SJ7 | 8N | |
| V2 | 1st AF Amp. | 12AH7GT | 12AH7GT | 8BE | |
| V3 | 2nd AF Amp.- Phase Inverter | 6SL7GT | 6SL7GT | 8BD | |
| V4 | Power Output | 6L6G | 6L6G | 7AC | |
| V5 | Power Output | 6L6G | 6L6G | 7AC | |
| V6 | Rectifier | 5Y3GT | 5Y3GT | 5T | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: DAVID BOGEN PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1A | 8 | 500 | | PRVC475/8-8 | EB10018 | | CL-88 | Filter Red-Black |
| B | 8 | 500 | | | | | | Filter Blue-Yellow |
| C2A | 5 | 450 | | AF2222J | UP111145 | | EL-410 | ◓ Filter |
| B | 5 | 450 | | | | | | Filter |
| C | 5 | 450 | | | | | | ■ Decoupling |
| D | 5 | 450 | | | | | | ▲ Decoupling |
| C3A | 5 | 450 | | AF2222J | UP111145 | | EL-410 | ◓ Pre-Amp. Screen Bypass |
| B | 5 | 450 | | | | | | ▲ Pre-Amp. Decoupling |
| C | 5 | 450 | | | | | | Pre-Amp. Decoupling |
| D | 5 | 450 | | | | | | ■ 1st AF Plate Decoupling |
| C4 | 10 | 25 | | PRS25/10 | BR102A | | TVA-5 | Pre-Amp. Cath. Bypass |
| C5 | 10 | 25 | | PRS25/10 | BR102A | | TVA-5 | 1st AF Cath. Bypass Note 1 |
| C6 | 50 | 50 | | PRS50/50 | BR505 | | TVA-16 | 2nd AF Cath. Bypass |
| C7 | 50 | 50 | | PRS50/50 | BR505 | | TVA-16 | Output Cath. Bypass |
| C8 | .006 | 600 | | P688-006 | GT6D6 | | TM-26 | Tone Compensation Note 2 |
| C9 | .05 | 400 | | P488-05 | GT4S5 | | TM-15 | Audio Coupling |
| C10 | .5 | 400 | | 484-5 | GT4P5 | | TC-5 | Audio Coupling |
| C11 | .05 | 400 | | P488-05 | GT4S5 | | TM-15 | Audio Coupling |
| C12 | .05 | 400 | | P488-05 | GT4S5 | | TM-15 | Audio Coupling |
| C13 | .25 | 400 | | P488-25 | GT4P25 | | TC-2 | Tone Compensation |
| C14 | .5 | 400 | | 484-5 | GT4P5 | | TC-5 | Tone Compensation Note 3 |
| C15 | .002 | 600 | | P688-002 | GT6D2 | GP2M-C02 | TM-22 | Tone Compensation |
| C16 | .1 | 600 | | P688-1 | GT6P1 | | TM-1 | Audio Coupling |
| C17 | .1 | 600 | | P688-1 | GT6P1 | | TM-1 | Audio Coupling |
| C18 | .1 | 500 | | P688-1 | GT6P1 | | TM-1 | Line Filter |

Note 1. Some Models Use 50MFD In This Application.
Note 2. Some Models Use .01MFD In This Application.
Note 3. Some Models Use .25MFD In This Application.

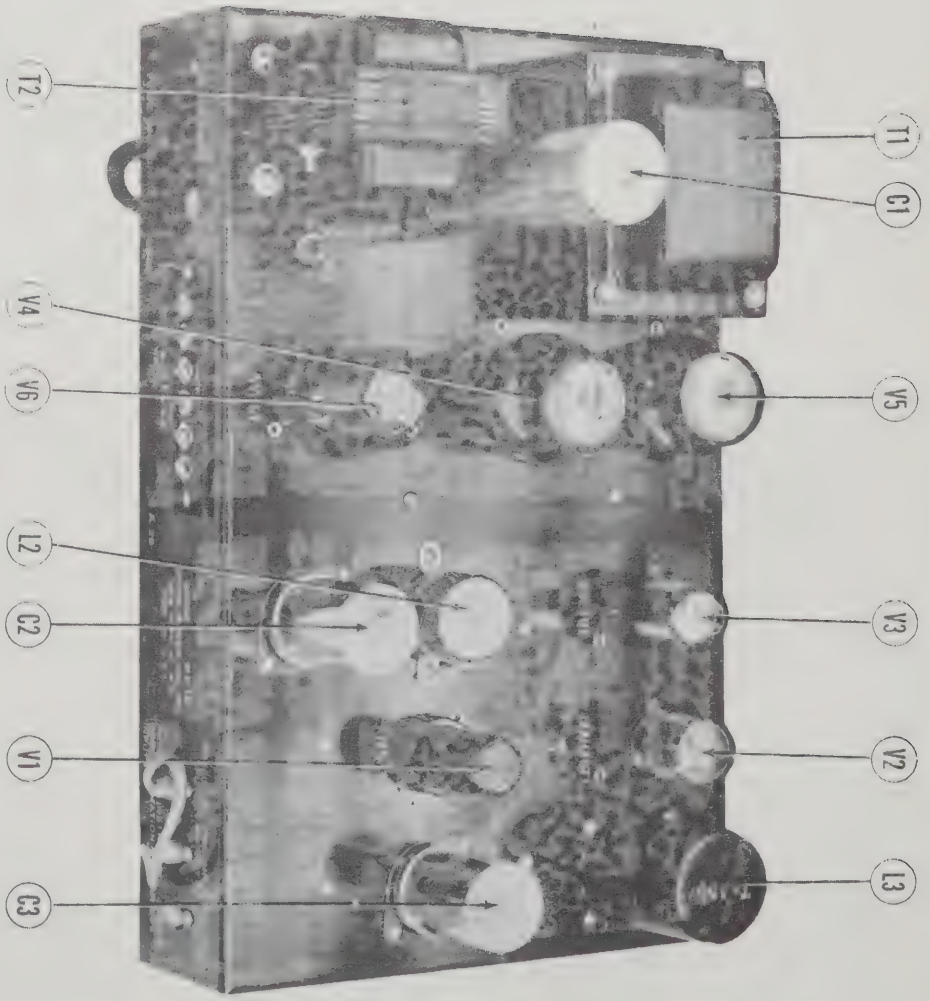
## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: DAVID BOGEN PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| R1 | 500KΩ | ½ | | Q13-133 | M-60-Z | Volume control |
| R2 | 500KΩ | ½ | | Q13-133 | M-60-Z | Bass control |
| R3 | 500KΩ | ½ | | Q13-133 | M-60-Z | Treble control |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: DAVID BOGEN PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R4 | 47KΩ | ½ | | BTS-47K | Pre Amp. Grid |
| R5 | 2000Ω | ½ | | BTS-2200 | Pre Amp. Cathode |
| R6 | 100KΩ | ½ | | BTS-100K | Pre Amp. Plate |
| R7 | 330KΩ | ½ | | BTS-330K | Pre Amp. Screen |
| R8 | 100KΩ | ½ | | BTS-100K | Filter |
| R9 | 33KΩ | ½ | | BTS-33K | Tone Compensation |
| R10 | 750Ω | ½ | | BTS-680 | 1st AF Cathode |
| R11 | 33KΩ | ½ | | BTS-33K | 1st AF Plate |
| R12 | 33KΩ | ½ | | BTS-33K | Filter |
| R13 | 10KΩ | ½ | | BTS-10K | Tone Compensation |
| R14 | 10KΩ | ½ | | BTS-10K | Tone Compensation |
| R15 | 500KΩ | ½ | | BTS-470K | 1st AF Grid |
| R16 | 2200Ω | ½ | | BTS-2200 | 1st AF Cathode |

# CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | DAVID BOGEN PART No. | IRC PART No. | |
| R17 | 100KΩ | ½ | | BTS-100K | 1st AF Cathode |
| R18 | 100KΩ | ½ | | BTS-100K | 1st AF Plate |
| R19 | 22KΩ | ½ | | BTS-22K | Filter |
| R20 | 500KΩ | ½ | | BTS-470K | 2nd AF Grid |
| R21 | 1000Ω | ½ | | BTS-1000 | 2nd AF Cathode |
| R22 | 2700Ω | ½ | | BTS-2700 | 2nd AF Cathode |
| R23 | 150KΩ | ½ | | BTS-150K | 2nd AF Plate |
| R24 | 15KΩ | ½ | | BTS-15K | Phase Inv. Grid |
| R25 | 3900Ω | ½ | | BTS-3900 | Phase Inv. Cathode |
| R26 | 150KΩ | ½ | | BTS-150K | Phase Inv. Plate |
| R27 | 75KΩ | ½ | | BTS-68K | Feedback |
| R28 | 220KΩ | ½ | | BTS-220K | Output Grid |
| R29 | 220KΩ | ½ | | BTS-220K | Output Grid |
| R30 | 15KΩ | 10 | | AB-15K | Filter Wire Wound |
| R31 | 15KΩ | 2 | | BW-2-15K | Filter |
| R32 | 4.7Ω | ½ | | BW-½-4.7 | Filament Dropping Wire Wound |

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | DAVID BOGEN PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. |
| T1 | 117VAC @ .97A | 820VCT .131A DC | 5VAC @ 2A | 6.3VAC @ 2.3A | T-367-1 | P-6165# | | P-2955# |

# Drill New Mounting Holes.

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | DAVID BOGEN PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| T2 | 6500Ω CT | 4Ω<br>8Ω<br>15Ω<br>250Ω<br>500Ω | 270Ω CT | .8Ω<br>1.1Ω<br>1.55Ω<br>2Ω<br>27.5Ω | T-230 | A-3801# | | A-3130# | # Drill New Mounting Holes |

## FILTER CHOKE

| ITEM No. | RATINGS | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D. C. RESISTANCE | INDUCTANCE (0 CURRENT 1000 ∿) | DAVID BOGEN PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | |
| L1 | .131A | 60Ω | 1.6Henries | T502 | C-2304§ | R-885 | C-2974§ | § Drill One New Mounting Hole |

## TONE CHOKE

| ITEM No. | RATINGS | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D. C. RESISTANCE | INDUCTANCE (0 CURRENT 1000 ∿) | DAVID BOGEN PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | |
| L2<br>L3 | | 665Ω<br>600Ω Tapped @ 305Ω & 156Ω | | T-550<br>T-150 | | | | |

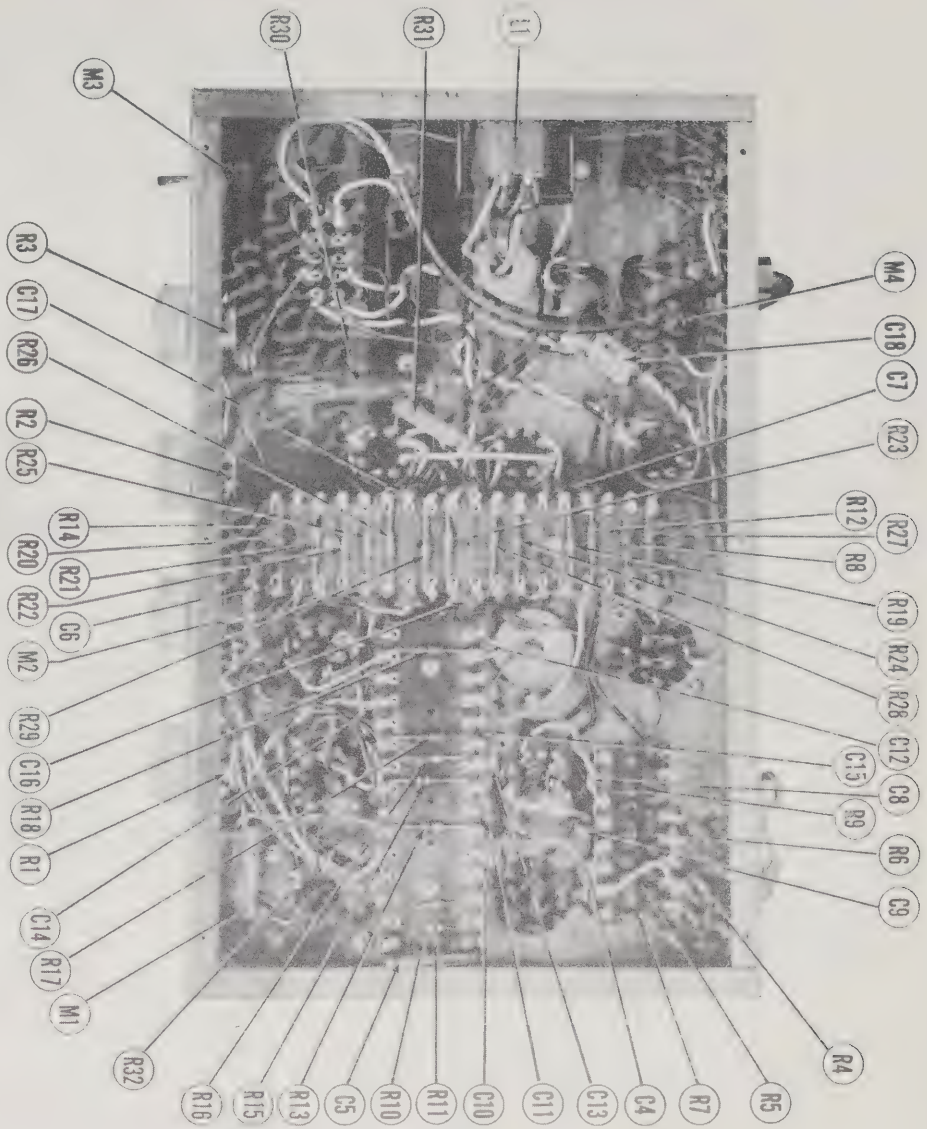
## DIAL LIGHTS

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | DAVID BOGEN PART No. | | |
| M1 | Bayonet | 6-8 | .15 | Brown | | | Type #47 |

## MISCELLANEOUS

| ITEM No. | PART NAME | DAVID BOGEN PART No. | NOTES |
|---|---|---|---|
| M2 | Switch | | Range |
| M3 | Switch | | Power |
| M4 | Fuse | | 1.5 Amp. |

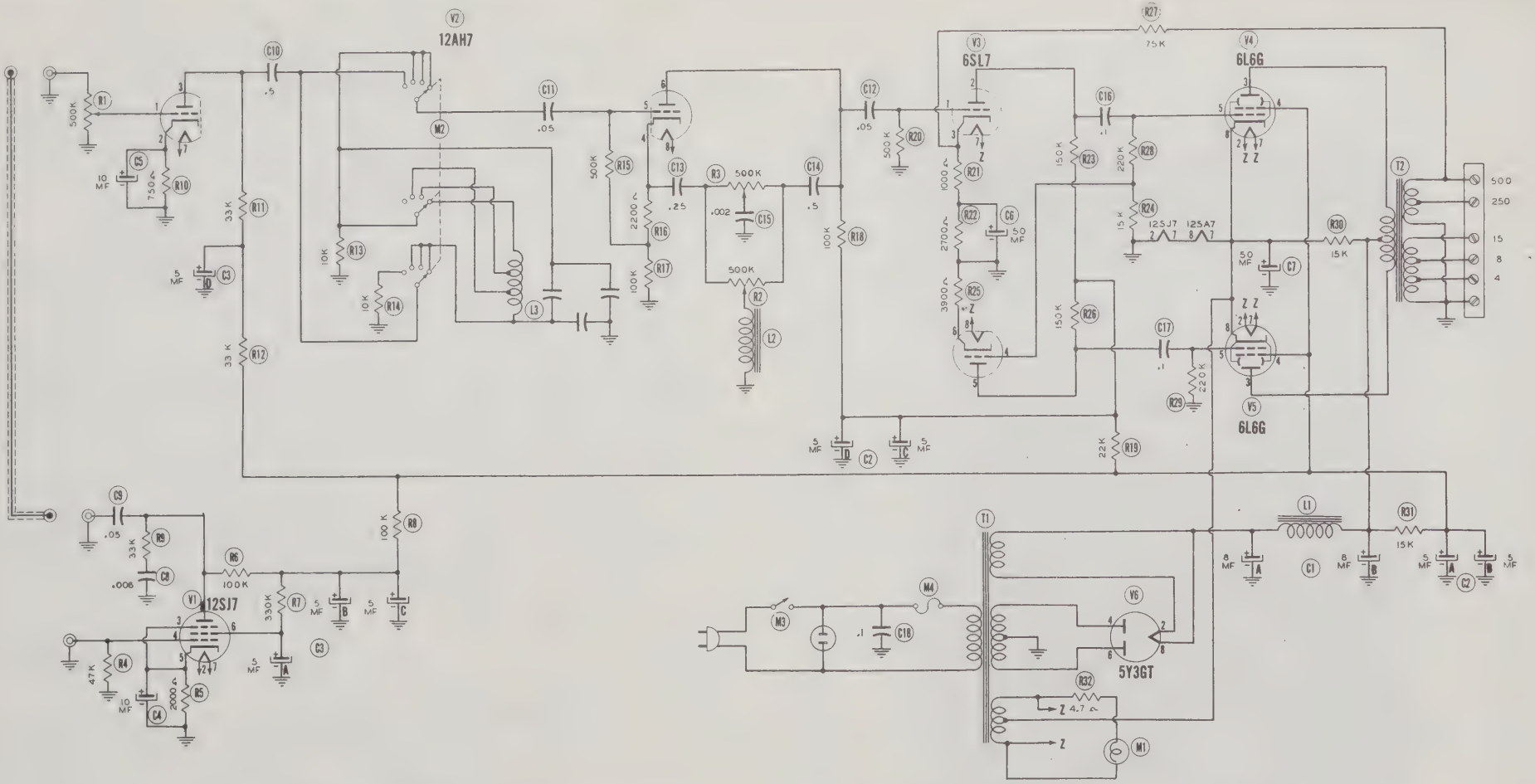
# CHASSIS—BOTTOM VIEW




DATE 10/49 SET #72 FOLDER #7

DAVID BOGEN MODEL PX15

DAVID BOGEN MODEL PX15




VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| V 1 | 12SJ7 | 0V | 0V | 2.6VDC | 0V | 2.6VDC | 70VDC | 10VDC | 76VDC |
| V 2 | 12AH7GT | 0V | 2.2VDC | 75VDC | 80VDC | 45VDC | 130VDC | 21VDC | 13VAC |
| V 3 | 6SL7GT | 0V | 138VDC | 2VDC | 0V | 145VDC | 2VDC | 21VAC | 21VAC |
| V 4 | 6L6G | 0V | 21VAC | 390VDC | 260VDC | .1VDC | 0V | 21VAC | 18VDC |
| V 5 | 6L6G | 0V | 21VAC | 390VDC | 260VDC | .2VDC | 430VDC | 21VAC | 18VDC |
| V 6 | 5Y3GT | 0V | 410VDC | 0V | 400VAC | 0V | 400VAC | 0V | 410VDC |

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| V 1 | 12SJ7 | MΩ | 0Ω | 2200Ω | 47KΩ | 2200Ω | 1280KΩ | MΩ | 1200KΩ |
| V 2 | 12AH7GT | 500KΩ | 80Ω | †90KΩ | 100KΩ | 650KΩ | †130KΩ | 27Ω | 14Ω |
| V 3 | 6SL7GT | 470KΩ | †180KΩ | 3KΩ | 15KΩ | †190KΩ | 4kΩ | 27Ω | 27Ω |
| V 4 | 6L6G | Inf. | 27Ω | †225Ω | †16KΩ | 250KΩ | 15KΩ | 27Ω | 27Ω |
| V 5 | 6L6G | Inf. | 27Ω | †230Ω | †16KΩ | 250KΩ | Inf. | 27Ω | 27Ω |
| V 6 | 5Y3GT | Inf. | 16KΩ | Inf. | 80Ω | Inf. | 90Ω | Inf. | 16KΩ |

† Measured From Pin 8 Of V6.

THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1949



1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Line voltage maintained at 117 volts for voltage readings.
5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6 - All controls at minimum, proper output load connected.

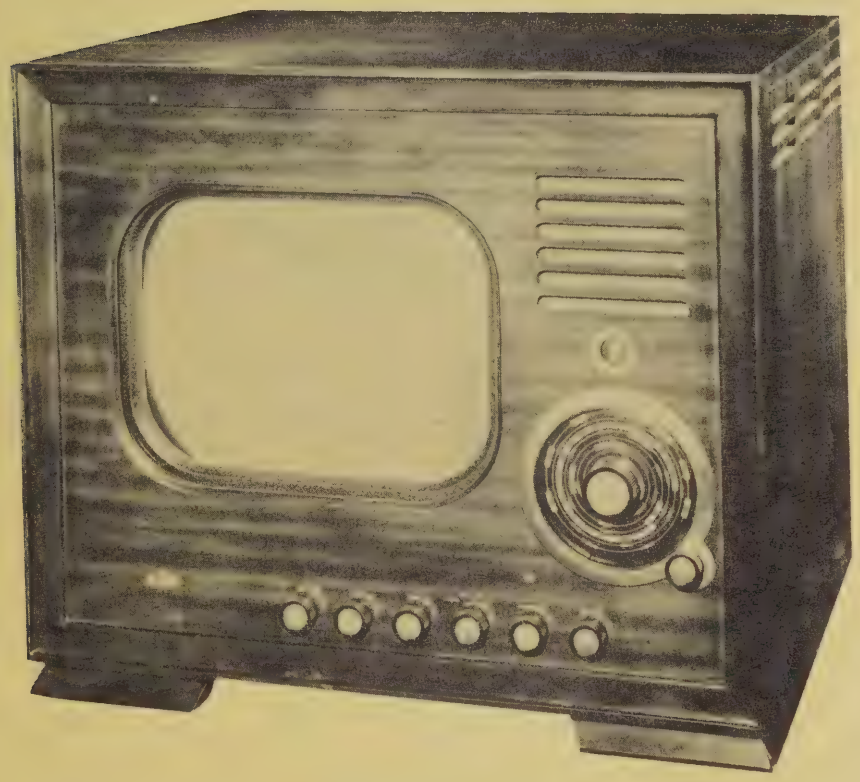
PHOTOFACT* Folder

**DUMONT MODEL**
**RA-105**

## IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

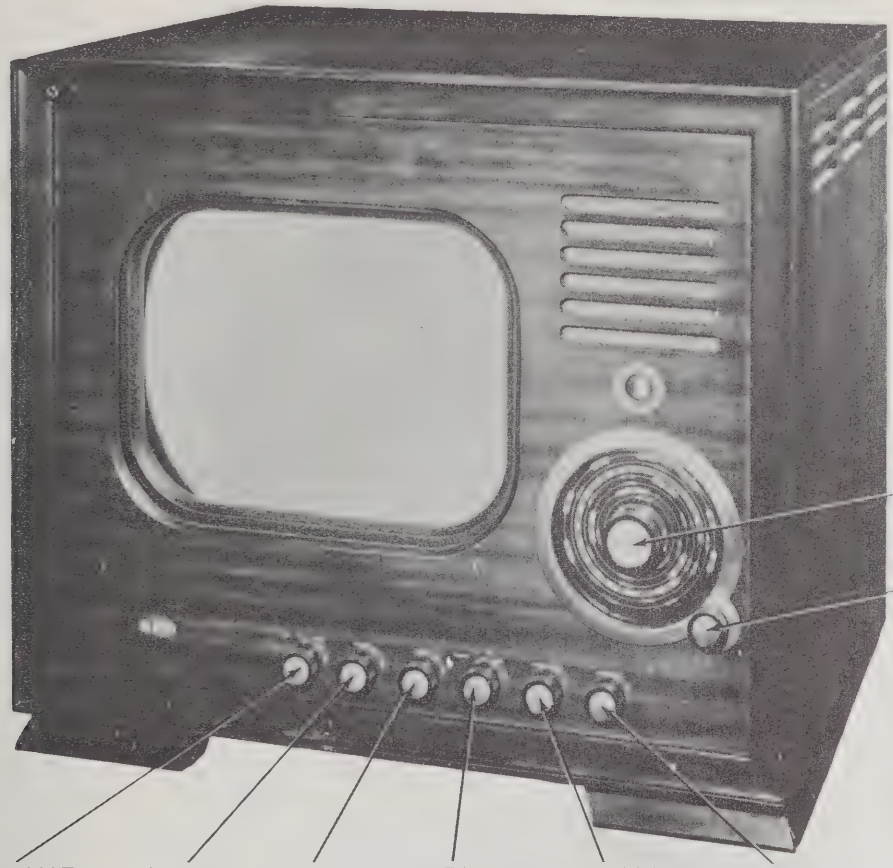


DUMONT MODEL
RA-105

**HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

**Date 10/49 Set No. 72—Folder No. 8**




DUMONT
MODEL RA-105

**TRADE NAME** Dumont, Model RA-105
**MANUFACTURER** Allen B. Dumont Labs., Inc., 2 Main Ave., Passaic, New Jersey
**TYPE SET** Television and FM Receiver
**TUBES** Thirty Four

**POWER SUPPLY** 110-120 Volts AC-60 Cycle
**TUNING RANGE**—44-216MC RATING: 2.7 Amp. @ 117 Volts AC

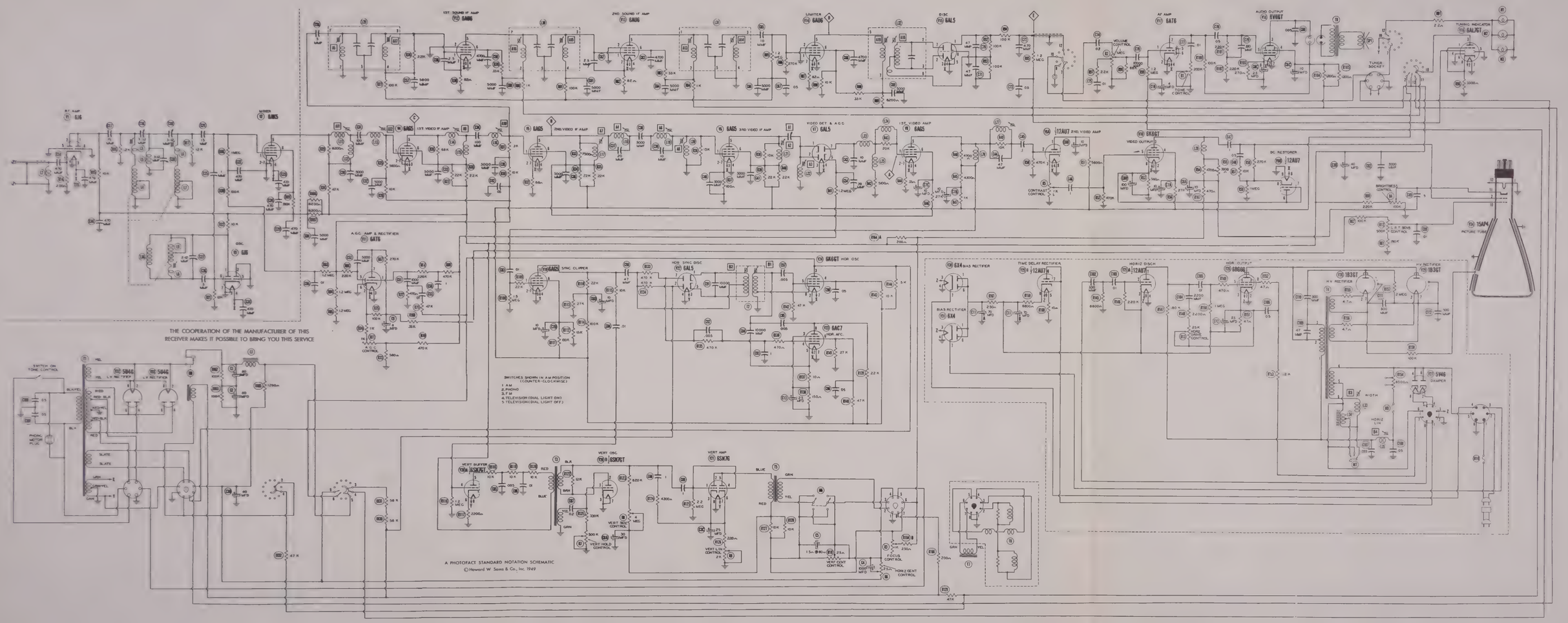
## INDEX

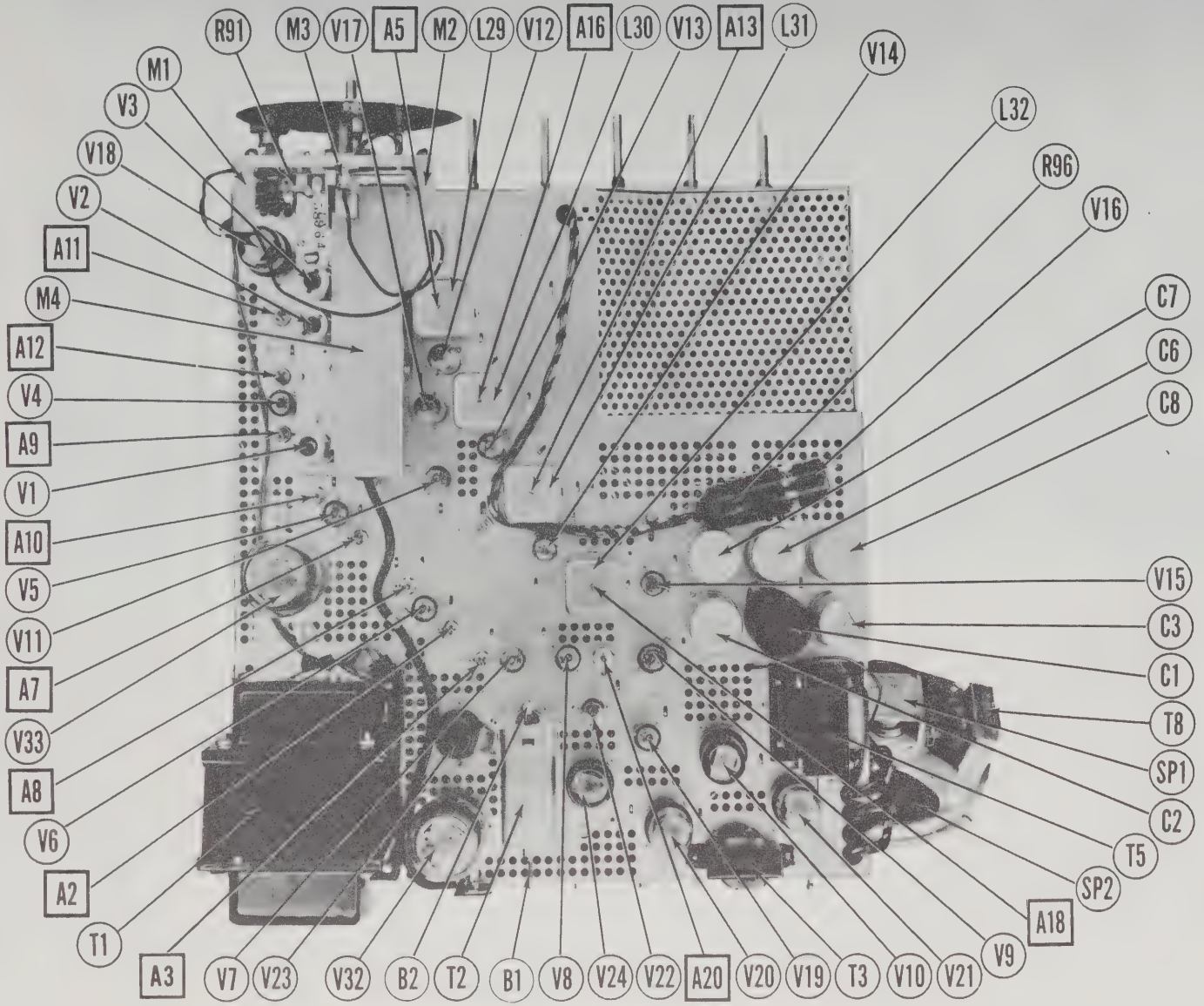

| | |
|---|---|
| Alignment Instructions | 6,7 |
| Block Diagram | 13 |
| Horizontal Sweep Adjustments | 20 |
| Parts List and Description | 16,17,18,19 |
| Photographs | |
| Cabinet-Rear View | 23 |
| Capacitor Identification | 11,22 |
| Chassis-Top View | 3 |
| Photographs (continued) | |
| High Voltage Power Supply | 15 |
| RF Tuner | 10 |
| Resistor Identification | 12,21 |
| Trans., Inductor and Alignment Identification | 4,9 |
| Schematic | 2 |
| Tube Placement Chart | 5,14 |
| Vertical Sweep Adjustments | 20 |
| Voltage and Resistance Measurements | 8 |


**HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana**

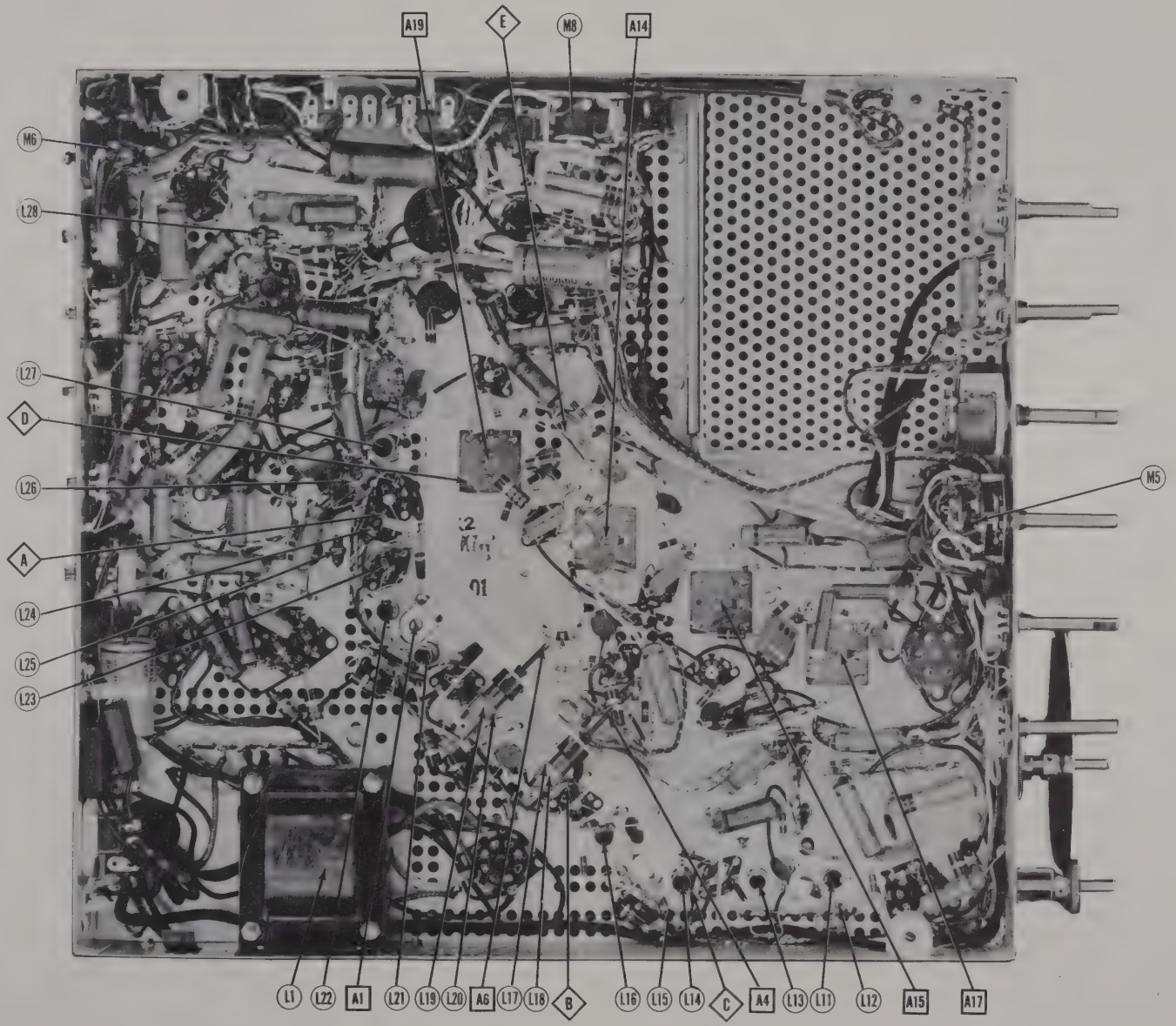
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 10/49 SET #72 FOLDER #8

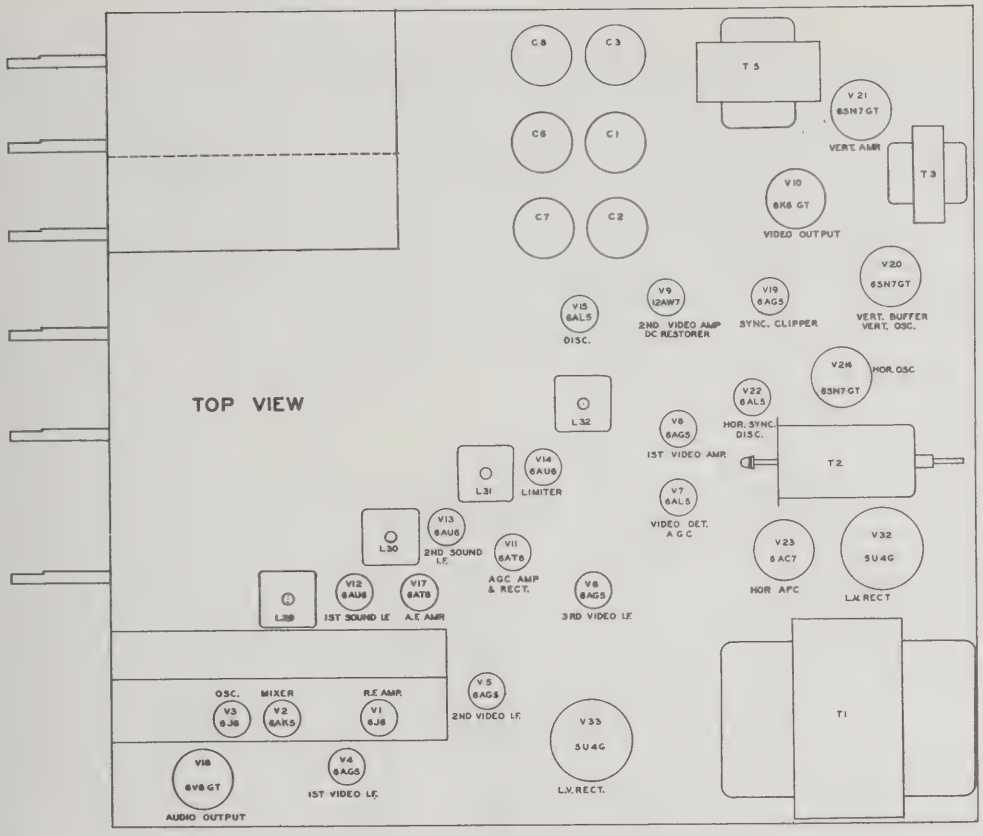

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
SWITCHES SHOWN IN AM POSITION (COUNTER-CLOCKWISE)
1 AM
2 PHONO
3 FM
4 TELEVISION (DIAL LIGHT ON)
5 TELEVISION (DIAL LIGHT OFF)
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1949
DUMONT
MODEL RA-105

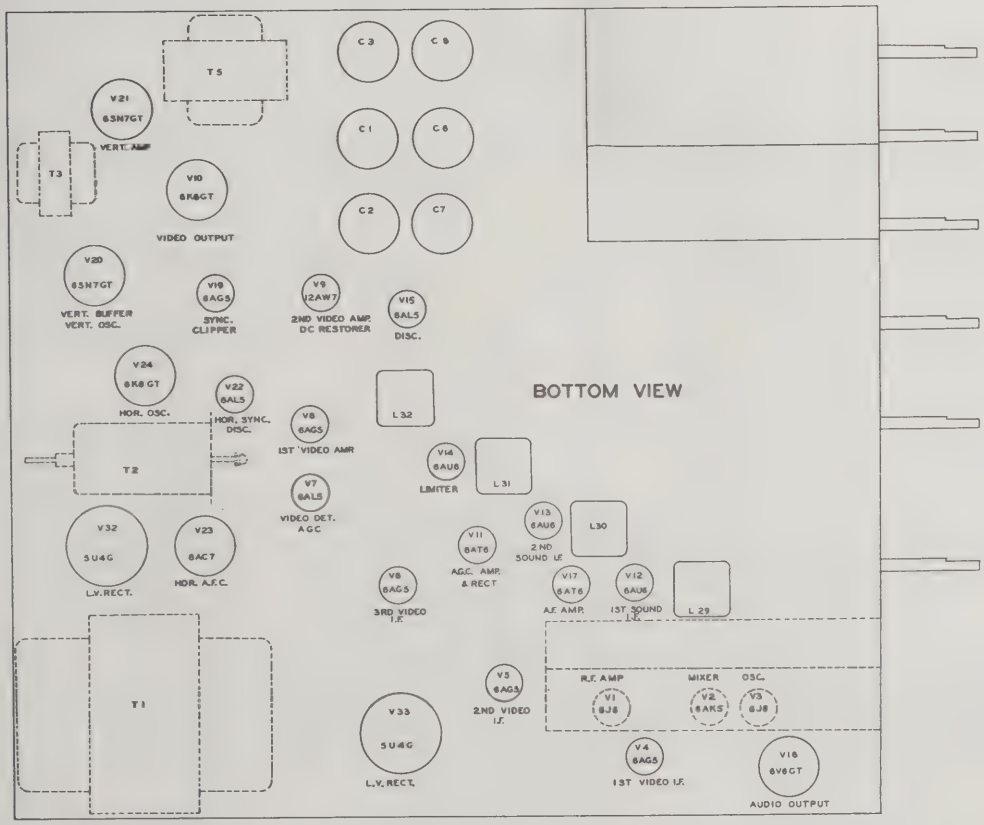



CHASSIS TOP VIEW




CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION




# TUBE PLACEMENT CHART

# ALIGNMENT INSTRUCTIONS

**PRE-ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

During alignment of this set the horizontal oscillator tube must not be removed to kill the high voltage, to do so will make the AGC inoperative and will cause erroneous indications. Securely tape the end of the high voltage lead to prevent physical contact. Remove the local oscillator tube V3.

**VIDEO IF ALIGNMENT**

Connect VTVM between the junction of C42 and R64 and chassis. Adjust AGC control (R11) for -3.2 volts. Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | .05MFD | High side to pin 1 (Grid) of 6AG5 (V6). Low side to chassis. | 24MC (10MC Sweep) | 21.9MC<br>22.4MC<br>22.9MC<br>25.65MC<br>26.4MC | Any | Vert. Amp. to Point (A) Low side to chassis. | A1,A2, A3 | Short L19. Adjust for response curve as per Fig 2. with markers as shown. |
| 2. | .05MFD | High side to pin 1 (Grid) of 6AG5 (V4). Low side to chassis. | Off | 21.9MC (400∿ AM Mod.) | " | " | A4,A5 | Adjust for minimum amplitude of 400∿ signal. |
| 3. | .05MFD | " | Off | 27.9MC (400∿ AM Mod.) | " | " | A6 | " |
| 4. | .05MFD | High side to pin 1 (Grid) of 6AG5 (V5). Low side to chassis. | 24MC (10MC Sweep) | 22.4MC<br>22.9MC<br>25.65MC<br>26.4MC | " | " | A7,A8 | Adjust for response curve as per Fig 3. with markers as shown. |
| 5. | .05MFD | High side to pin 1 (Grid) of 6AG5 (V4). Low side to chassis. | 24MC (10MC Sweep) | 21.9MC<br>22.4MC<br>22.9MC<br>25.65MC<br>26.4MC | " | Vert. Amp. thru probe detector (Fig 1) to point (B) Low side to chassis. | A9,A10 | Adjust for response curve as per Fig 4. with markers as shown. |
| 6. | .05MFD | " | 24MC (10MC Sweep) | 22.4MC<br>22.9MC<br>25.65MC<br>26.4MC | " | Vert. Amp. to point (A) Low side to chassis. | | Check for response curve as per Fig 5. If necessary slightly re-touch A9 and A10. |
| 7. | .05MFD | High side to un-grounded tube shield floating over mixer tube (V2). Low side to chassis. | 24MC (10MC Sweep) | 21.9MC<br>22.4MC<br>22.9MC<br>25.65MC<br>26.4MC | " | Vert. Amp. thru probe detector (Fig 1) to point (C) Low side to chassis. | A11, A12 | Short pin 1 (Grid) of 6AG5 (V5) to chassis. Adjust for response as per Fig 6. with markers as shown. After adjustments have been made, remove short from grid of V5. |
| 8. | .05MFD | " | " | 22.4MC<br>22.9MC<br>25.65MC<br>26.4MC | " | Vert. Amp. to Point (A) Low side to chassis. | | Check for response curve as per Fig 7. If necessary slightly retouch A9 and A10. |

**SOUND IF ALIGNMENT**

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 9. | .05MFD | High side to pin 1 (Grid) of 6AU6 (V15). Low side to chassis. | 21.9MC (450KC Sweep) | 21.8MC<br>21.9MC<br>22.0MC | Any | Vert. Amp. thru probe detector to point (D) Low side to chassis. | A13, A14 | Adjust for symmetrical response as per Fig 8. with markers as shown. |
| 10. | .05MFD | High side to pin 1 (Grid) of 6AU6 (V12). Low side to chassis. | 21.9MC (450KC Sweep) | " | " | " | A15, A16 | Adjust for symmetrical response as per Fig 9. with markers as shown. |
| 11. | Direct | High side to un-grounded tube shield floating over mixer tube (V2). Low side to chassis. | " | " | " | " | A17 | Adjust for symmetrical response as per Fig 9 with markers as shown. |
| 12. | Direct | " | " | " | " | Vert. Amp. tp Point (E) Low side to chassis. | A18, A19 | Adjust A18 for response pattern as per Fig 10 with 21.9MC marker at center. Adjust A19 for maximum amplitude and straightness of diagonal line. Readjust AGC control as given below. |

**45 MC TRAP ADJUSTMENT**

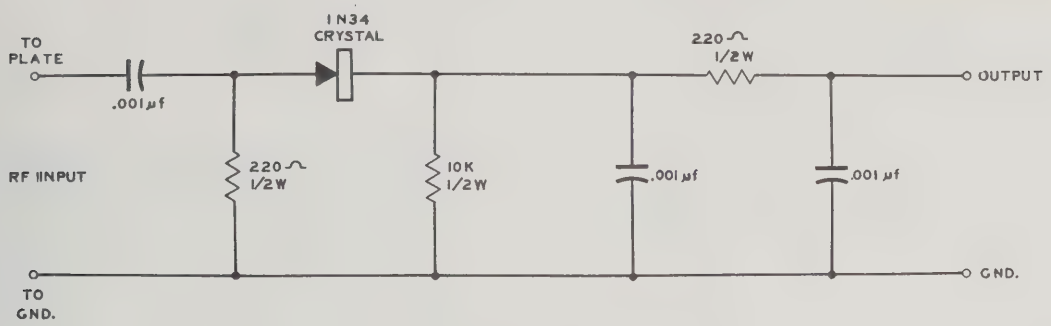
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 13. | Direct | High side to Point A. Low side to chassis. | Off | 4.5MC (400∿ AM Mod.) | Any | Vert. Amp. thru probe detector to pin 2 (Grid) of picture tube. Low side to chassis. | A20 | Adjust for minimum vertical deflection on scope. |

**AGC THRESHOLD ADJUSTMENT**

In the event of a change of AGC tube (V11) or after complete alignment, adjust AGC control (R11) as follows. Disconnect antenna from receiver. Connect VTVM across (C42) and rotate AGC control fully counter-clockwise. At this setting VTVM should read approximately-1 volt. Rotate AGC control clockwise. Over part of the range of the control, the AGC voltage will not change, but near mid range the voltage will rise suddenly. The AGC control should be set at the point where this sudden rise begins.

THE RF TUNER IN THIS RECEIVER IS PRE-SET AT THE FACTORY AND NORMALLY SHOULD NOT REQUIRE ADJUSTMENT IN THE FIELD.

# ALIGNMENT INSTRUCTIONS (CONT.)




PROBE DETECTOR

FIG. 1

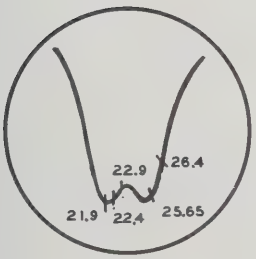



FIG.2

FIG.3

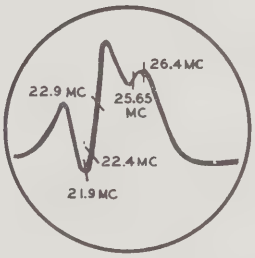



FIG.4

FIG.5

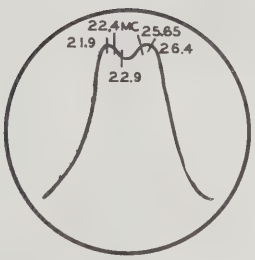



FIG.6

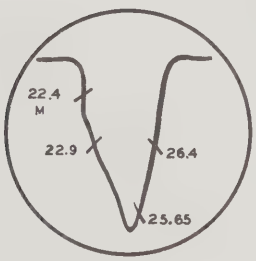



FIG.7

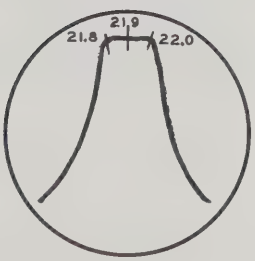



FIG.8

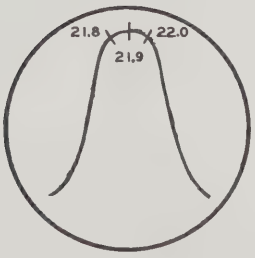



FIG. 9

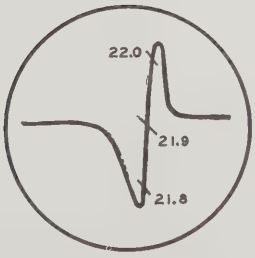



FIG. 10

# VOLTAGE AND RESISTANCE MEASUREMENTS

## VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6J6 | 120VDC | 120VDC | 6.3VAC | 0V | 0V | 0V | 2.3VDC | | |
| V 2 | 6AK5 | -.9VDC | 0V | 0V | 6.3VAC | 300VDC | 215VDC | 0V | | |
| V 3 | 6J6 | 140VDC | 0V | 0V | 6.3VAC | 0V | $-2.4 VDC | 0V | | |
| V 4 | 6AG5 | -5.2VDC | 0V | 6.3VAC | 0V | 320VDC | 320VDC | 0V | | |
| V 5 | 6AG5 | -4.4VDC | 0V | 6.3VAC | 0V | 275VDC | 275VDC | 0V | | |
| V 6 | 6AG5 | 0V | 1.3VDC | 6.3VAC | 0V | 172VDC | 172VDC | 1.3VDC | | |
| V 7 | 6AL5 | 0V | 0V | 0V | 6.3VAC | .5VDC | 0V | -.1VDC | | |
| V 8 | 6AG5 | -.1VDC | .5VDC | 6.3VAC | 0V | 235VDC | 155VDC | .5VDC | | |
| V 9 | 12AU7 | 255VDC | 0V | 8.4VDC | 6.3VDC | 6.3VAC | 14VDC | 14VDC | 14VDC | 0V |
| V 10 | 6K6GT | 0V | 0V | 290VDC | 210VDC | 0V | 300VDC | 6.3VAC | 12.5VDC | |
| V 11 | 6AT6 | .2VDC | 5.2VDC | 0V | 6.3VAC | -3.1VDC | 0V | 200VDC | | |
| V 12 | 6AU6 | .2VDC | 0V | 6.3VAC | 0V | 290VDC | 150VDC | 1.2VDC | | |
| V 13 | 6AU6 | .3VDC | 0V | 6.3VAC | 0V | 290VDC | 145VDC | 1.2VDC | | |
| V 14 | 6AU6 | -.2VDC | 0V | 6.3VAC | 0V | 240VDC | 50VDC | .2VDC | | |
| V 15 | 6AL5 | .9VDC | -.3VDC | 6.3VAC | 0V | 0V | 0V | -.2VDC | | |
| V 16 | 6AL7GT | 1.6VDC | 6.3VAC | 300VDC | 0V | 0V | 0V | 0V | 1.6VDC | |
| V 17 | 6AT6 | -.3VDC | 0V | 0V | 6.3VAC | 0V | 0V | 160VDC | | |
| V 18 | 6V6GT | 0V | 6.3VAC | 255VDC | 255VDC | 0V | 0V | 0V | 14VDC | |
| V 19 | 6AG5 | -.3VDC | 0V | 0V | 6.3VAC | 17VDC | 34VDC | 0V | | |
| V 20 | 6SN7GT | -6.7VDC -8.6VDC | 50VDC 175VDC | 0V | 0V | 200VDC | 8VDC | 0V | 6.3VAC | |
| V 21 | 6SN7GT | .1VDC | 310VDC | 5VDC 16VDC | .1VDC | 310VDC | 5VDC 16VDC | 6.3VAC | 0V | |
| V 22 | 6AL5 | 2.8VDC | -1.4VDC | 6.3VAC | 0V | 1VDC | 0V | -1VDC | | |
| V 23 | 6AC7 | 0V | 6.3VAC | 0V | -1VDC | 0V | 110VDC | 0V | 290VDC | |
| V 24 | 6K6GT | 0V | 0V | 230VDC | 230VDC | -42VDC | .6VDC | 6.3VAC | .1VDC | |
| V 25 | 12AU7 | 60VDC | ♦-60VDC | ♦-25VDC | 0V | 1.5VAC | -35VDC | -35VDC | ♦-75VDC | 6.3VAC |
| V 26 | 6BG6G | 200VDC | 0V | ♦-20VDC | 0V | ♦-40VDC | ♦-40VDC | 6.3VAC | 200VDC | TOP CAP * |
| V 27 | 5V4G | 0V | 460VDC | 0V | 390VDC | 0V | 390VDC | 0V | 460VDC | |
| V 28 | 1B3GT | * DO NOT MEASURE. | | | | | | | | |
| V 29 | 1B3GT | * DO NOT MEASURE. | | | | | | | | |
| V 30 | 6X4 | -115VDC | -90VDC | 6.3VAC | 0V | -90VDC | -115VDC | 115VAC | | |
| V31 | 6X4 | -115VDC | 0V | 6.3VAC | 0V | 0V | -115VDC | 115VAC | | |
| V32 | 5U4G | 0V | 410VDC | 0V | 380VAC | 0V | 380VAC | 0V | 410VDC | |
| V33 | 5U4G | 0V | 410VDC | 0V | 380VAC | 0V | 380VAC | 0V | 410VDC | |
| V34 | 15AP4 | 0V | 11VDC | PIN 10 130VDC | 340VDC | PIN 11 100VDC | PIN 12 6.3VAC | | | |

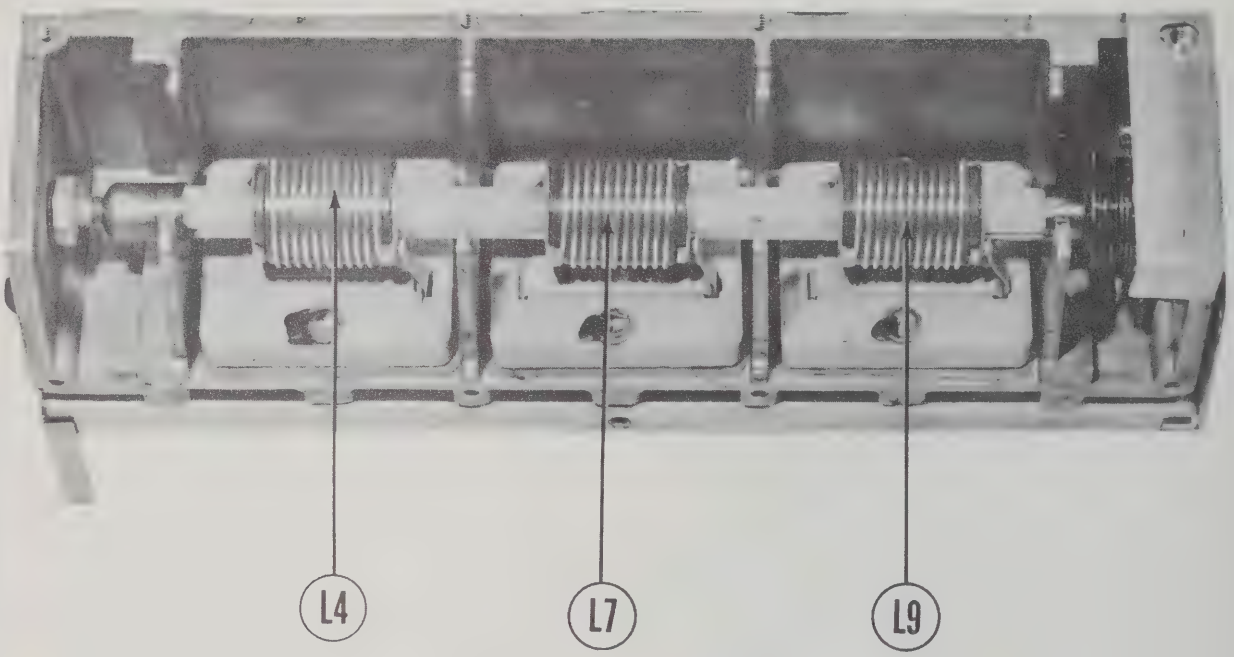
* Do Not Measure.
$ Taken With Vacuum Tube Voltmeter.
♦ Measured From Pin 6 Of V31.

## RESISTANCE READINGS

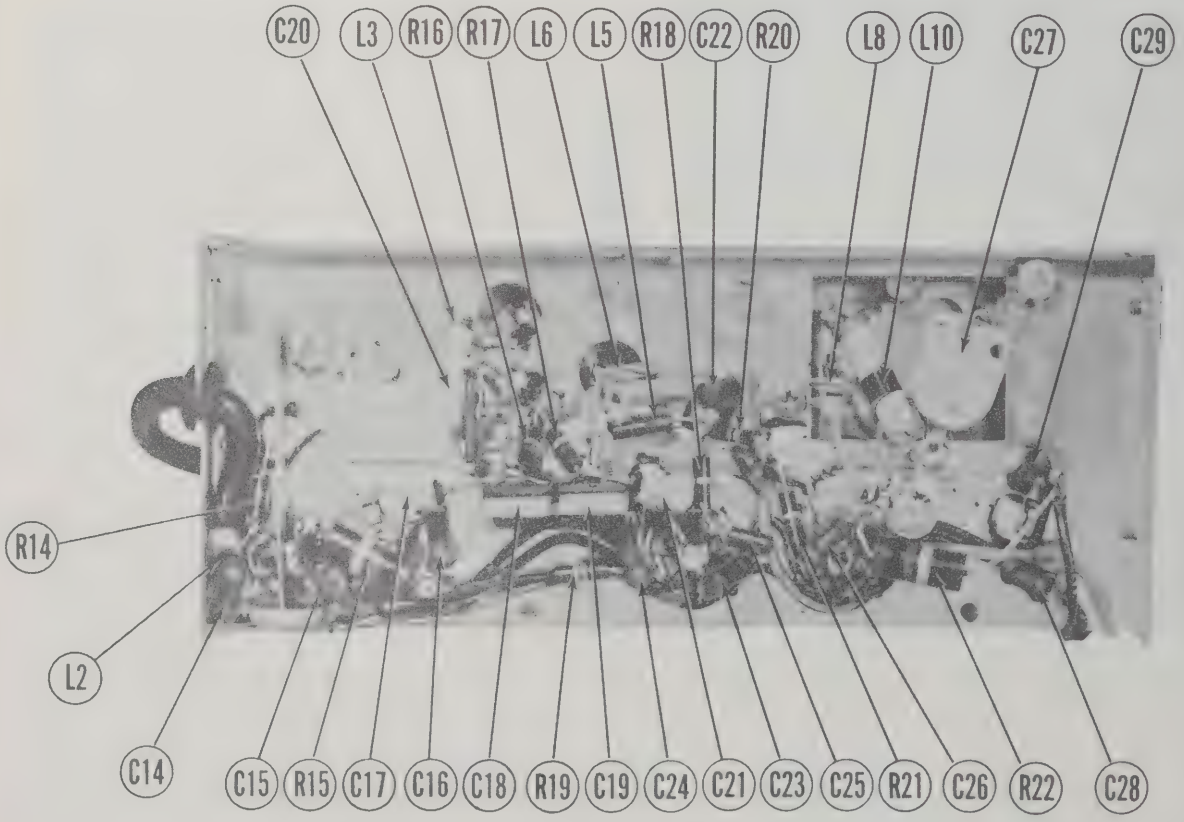
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6J6 | †15KΩ | †15KΩ | .1Ω | 0Ω | 0Ω | 0Ω | 200Ω | | |
| V 2 | 6AK5 | 6.7 Meg | 0Ω | 0Ω | .1Ω | †48KΩ | †330KΩ | 0Ω | | |
| V 3 | 6J6 | †15KΩ | 0Ω | 0Ω | .1Ω | 0Ω | 12KΩ | 0Ω | | |
| V 4 | 6AG5 | 2.5 Meg | 0Ω | .1Ω | 0Ω | †12KΩ | †12KΩ | 0Ω | | |
| V 5 | 6AG5 | 2.5 Meg | 68Ω | .1Ω | 0Ω | †12KΩ | †12KΩ | 68Ω | | |
| V 6 | 6AG5 | 0Ω | 100Ω | .1Ω | 0Ω | †12KΩ | †12KΩ | 100Ω | | |
| V 7 | 6AL5 | 0Ω | 0Ω | 0Ω | .1Ω | 470KΩ | Inf. | 5KΩ | | |
| V 8 | 6AG5 | 5KΩ | 33Ω | .1Ω | 0Ω | †6.5KΩ | †40KΩ | 33Ω | | |
| V 9 | 12AU7 | †7KΩ | 470KΩ | 1KΩ | .1Ω | .1Ω | 560Ω | 560Ω | 1 Meg. | 0Ω |
| V 10 | 6K6GT | Inf. | 0Ω | †3.5KΩ | †28KΩ | 470KΩ | †560Ω | .1Ω | 560Ω | |
| V 11 | 6AT6 | 1 Meg. | 2.5KΩ 1.5KΩ | 0Ω | .1Ω | 2.5 Meg | 0Ω | †300KΩ | | |
| V 12 | 6AU6 | 1.6 Meg | 0Ω | .1Ω | 0Ω | †2KΩ | †35KΩ | 82Ω | | |
| V 13 | 6AU6 | 1.5 Meg | 0Ω | .1Ω | 0Ω | †2KΩ | †35KΩ | 82Ω | | |
| V 14 | 6AU6 | 270KΩ | 0Ω | .1Ω | 0Ω | †10KΩ | †20KΩ | 82Ω | | |
| V 15 | 6AL5 | 200KΩ | 100KΩ | .1Ω | 0Ω | 0Ω | 0Ω | 100KΩ | | |
| V 16 | 6AL7GT | 3.3KΩ | .1Ω | †3KΩ | 1.5 Meg | 0Ω | 0Ω | 0Ω | 3.3KΩ | |
| V 17 | 6AT6 | 1.2 Meg | 0Ω | 0Ω | .1Ω | Inf. | Inf. | †100KΩ | | |
| V 18 | 6V6GT | 0Ω | .1Ω | †2KΩ | †1.5KΩ | 440KΩ | 220KΩ | 0Ω | 270Ω | |
| V 19 | 6AG5 | 1.8 Meg | 0Ω | 0Ω | .1Ω | †60KΩ | †25KΩ | 0Ω | | |
| V 20 | 6SN7GT | 330KΩ 330KΩ | †4.5Meg †820KΩ | 0Ω | 1.2 Meg | †30KΩ | 2.2KΩ | 0Ω | .1Ω | |
| V 21 | 6SN7GT | 2.2 Meg | †6KΩ | 2.2KΩ 220Ω | 2.2 Meg | †6KΩ | 2.2KΩ 220Ω | .1Ω | 0Ω | |
| V 22 | 6AL5 | 470KΩ | 200Ω | .1Ω | 0Ω | 470KΩ | Inf. | 1 Meg. | | |
| V 23 | 6AC7 | 0Ω | .1Ω | 0Ω | 1.5 Meg | 10Ω | †25KΩ | 0Ω | †23KΩ | |
| V 24 | 6K6GT | 0Ω | 0Ω | †6KΩ | †11KΩ | 47KΩ | 470KΩ | .1Ω | 20Ω | |
| V 25 | 12AU7 | †180KΩ | ♦ 220KΩ | ♦ 250Ω | 0Ω | 4.5Ω | 5KΩ | 5KΩ | ♦ 7KΩ | .1Ω |
| V 26 | 6BG6G | Inf. | 0Ω | ♦ 300Ω | 6.8KΩ | ♦ 1 Meg. | ♦ 1 Meg | .1Ω | †12KΩ | TOP CAP †8.5KΩ |
| V 27 | 5V4G | Inf. | †8.5KΩ | Inf. | †90Ω | Inf. | †90Ω | Inf. | †8.5KΩ | |
| V 28 | 1B3GT | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | TOP CAP † Inf. |
| V 29 | 1B3GT | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | TOP CAP † 8.5KΩ |
| V 30 | 6X4 | 100KΩ | 100KΩ | .1Ω | 0Ω | 100KΩ | 100KΩ | 5Ω | | |
| V31 | 6X4 | 100KΩ | Inf. | .1Ω | 0Ω | Inf. | 100KΩ | 5Ω | | |
| V32 | 5U4G | Inf. | 15KΩ | Inf. | 17Ω | Inf. | 15Ω | Inf. | 15KΩ | |
| V33 | 5U4G | Inf. | 15KΩ | Inf. | 17Ω | Inf. | 15Ω | Inf. | 15KΩ | |
| V34 | 15AP4 | 0Ω | 1.2 Meg | †260KΩ | PIN 10 †90KΩ | PIN 11 80KΩ | PIN 12 .1Ω | | | |

† Measured From Pin 2 Of V33.
♦ Measured From Pin 6 Of V31.
Note: Relay Must Be Tied Shut For Resistance Measurements.

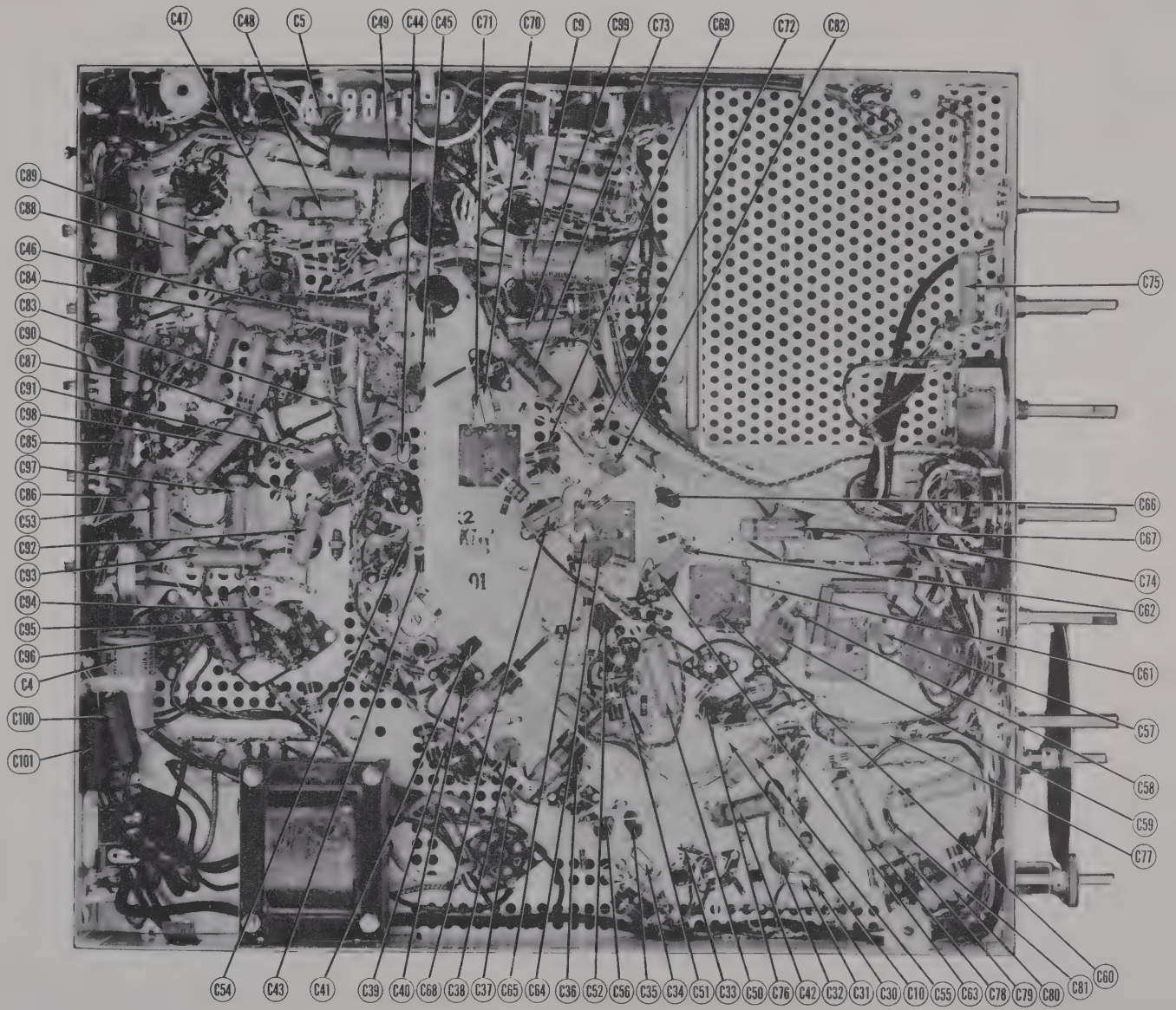
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



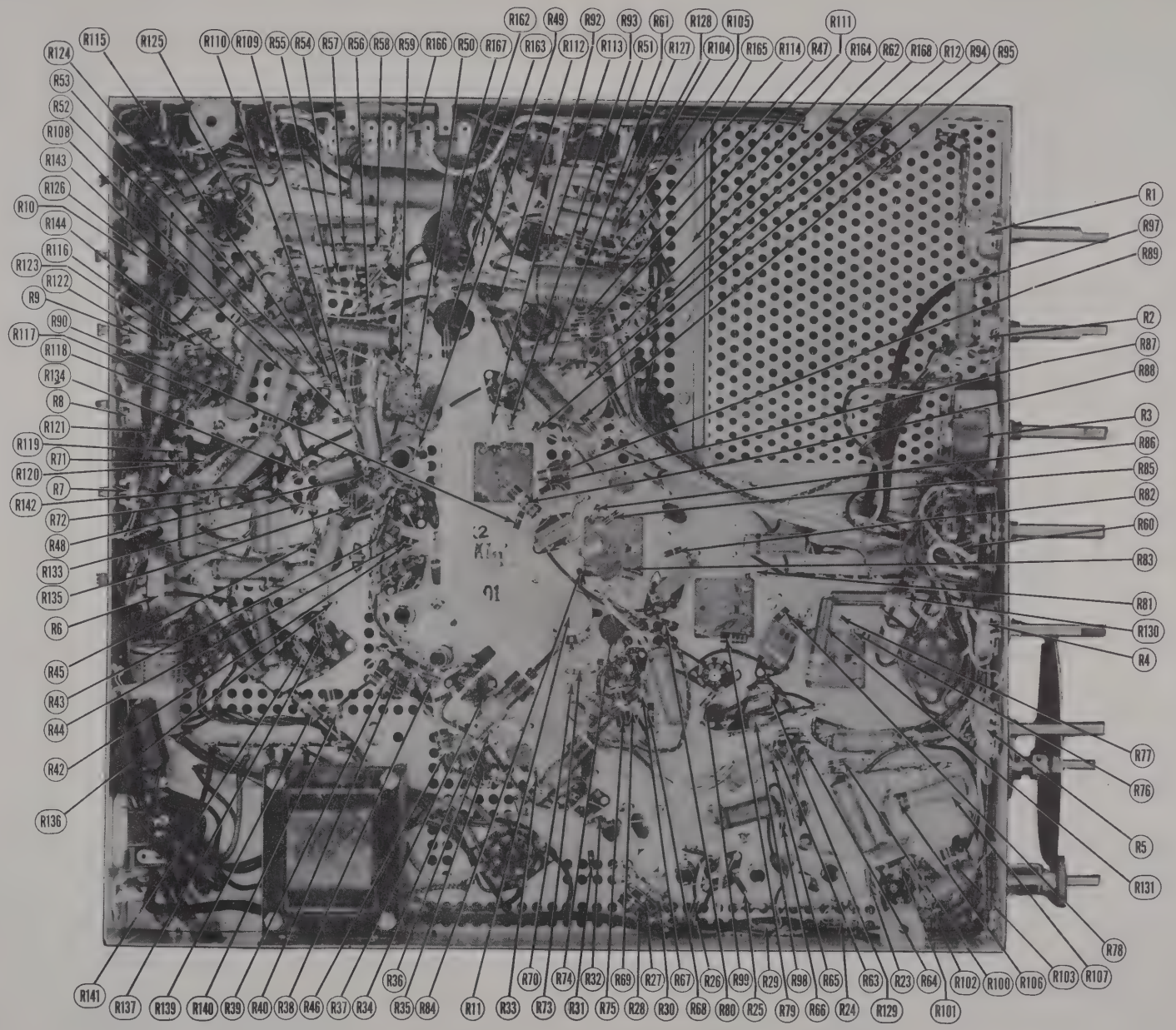

RF TUNER-TOP VIEW



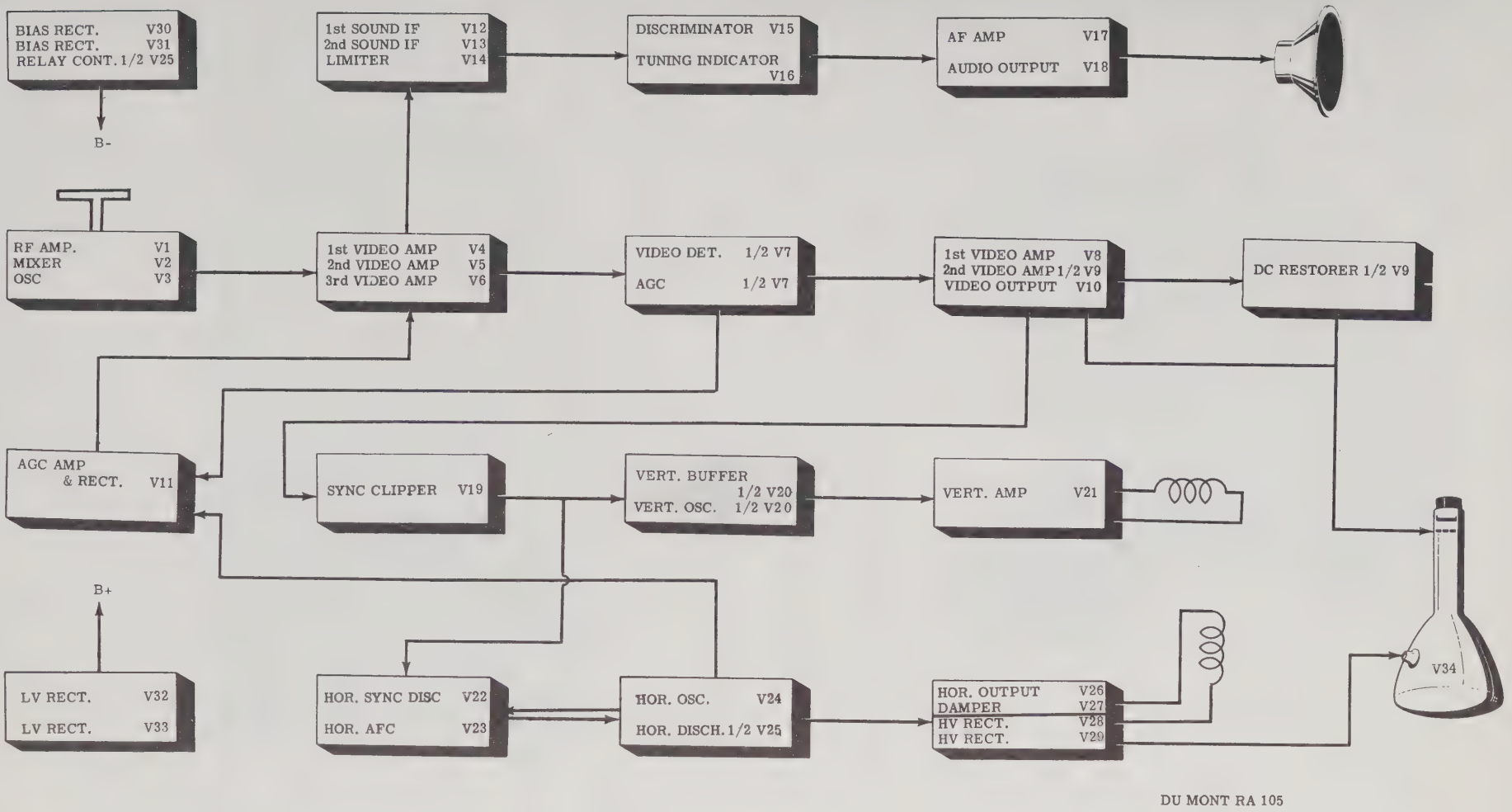

RF TUNER-BOTTOM VIEW




CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

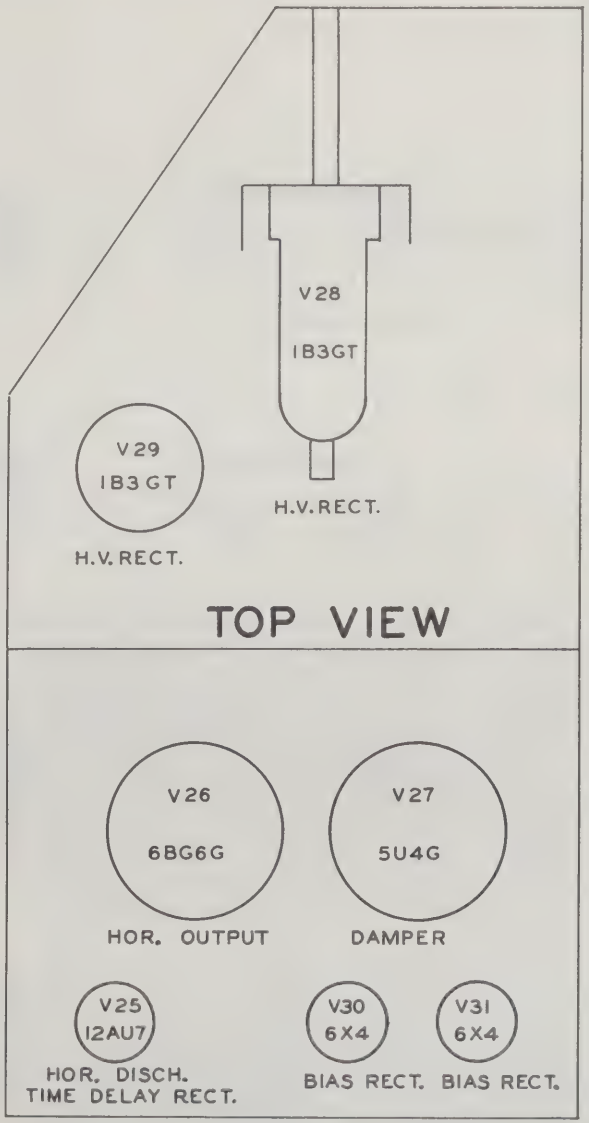


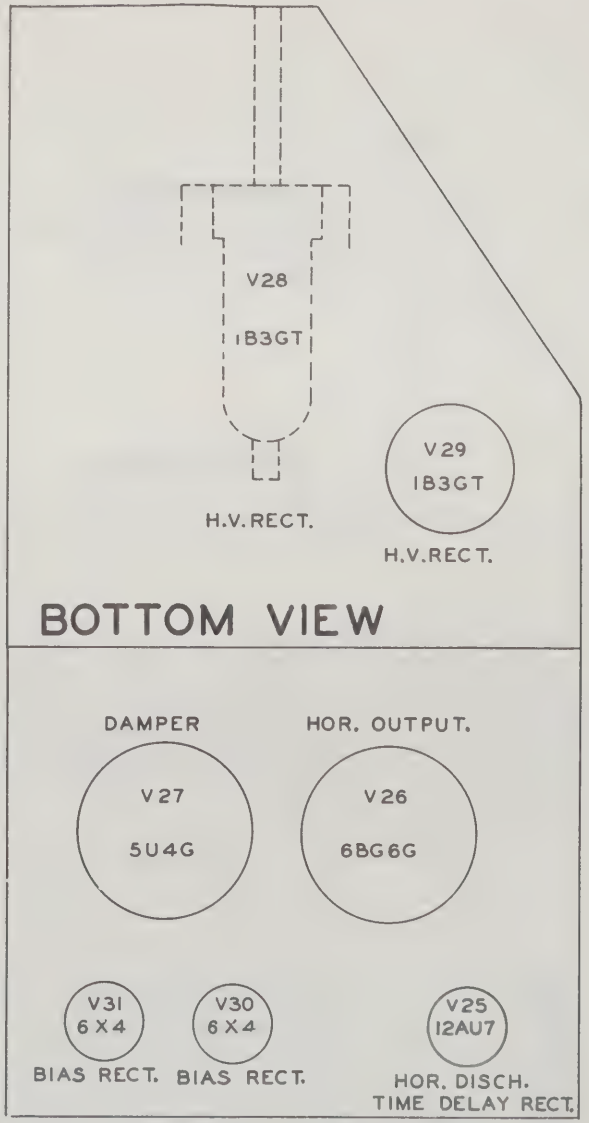

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



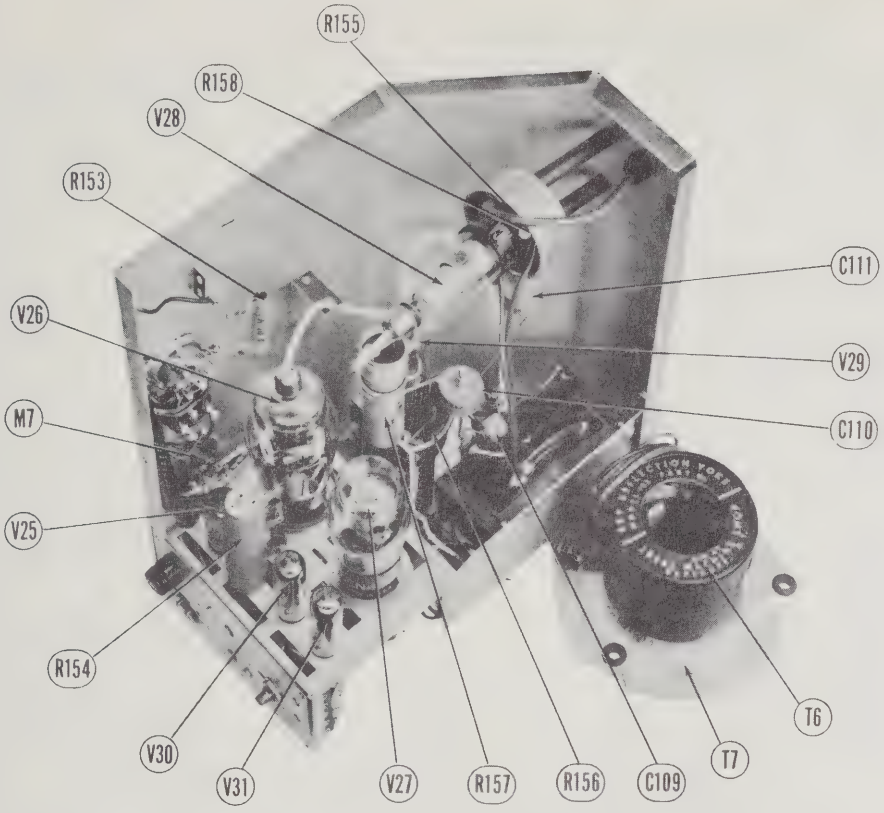

DU MONT RA 105

# BLOCK DIAGRAM

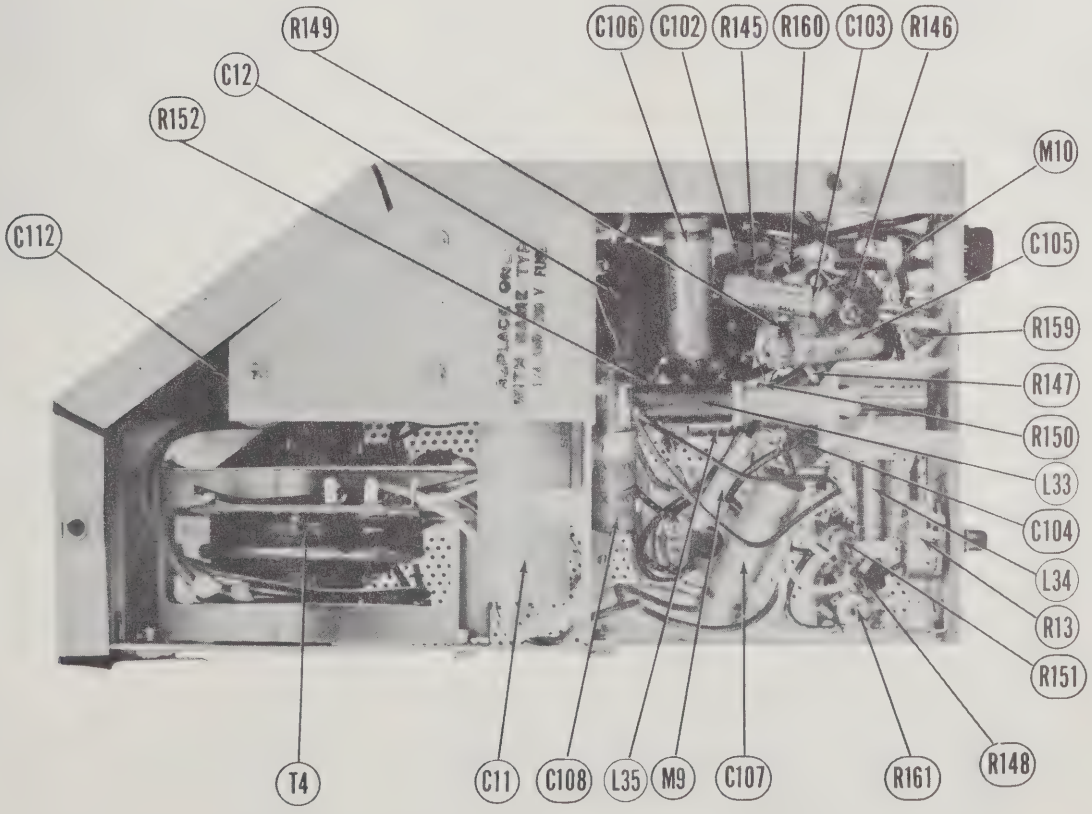



TUBE PLACEMENT CHART - HIGH VOLTAGE SUPPLY




HIGH VOLTAGE SUPPLY - TOP VIEW




HIGH VOLTAGE SUPPLY - BOTTOM VIEW

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: DUMONT PART No. | STANDARD REPLACEMENT | RMA BASE TYPE | NOTES |
|---|---|---|---|---|---|
| V1 | RF Amp. | 25000190 | 6J6 | 7BF | |
| V2 | Mixer | 25000190 | 6AK5 | 7BD | |
| V3 | Oscillator | 25000190 | 6J6 | 7BF | |
| V4 | 1st Video IF Amp. | 25000010 | 6AG5 | 7BD | |
| V5 | 2nd Video IF Amp. | 25000010 | 6AG5 | 7BD | |
| V6 | 3rd Video IF Amp. | 25000010 | 6AG5 | 7BD | |
| V7 | Video Det. | 25000020 | 6AL5 | 6BT | |
| V8 | 1st Video Amp. | 25000010 | 6AG5 | 7BD | |
| V9 | 2nd Video Amp. DC Restorer | 25000130 | 12AU7 | 9A | |
| V10 | Video Output | 25000100 | 6K6GT | 7S | |
| V11 | AGC Amp. | 25000040 | 6AT6 | 7BT | |
| V12 | 1st Sound IF Amp. | 25000050 | 6AU6 | 7BK | |
| V13 | 2nd Sound IF Amp. | 25000050 | 6AU6 | 7BK | |
| V14 | Limiter | 25000050 | 6AU6 | 7BK | |
| V15 | Discriminator | 25000020 | 6AL5 | 6BT | |
| V16 | Tuning Ind. | 25000200 | 6AL7GT | 8CH | |
| V17 | AF Amp. & Rect. | 25000040 | 6AT6 | 7BT | |
| V18 | Audio Output | 25000090 | 6V6GT | 7AC | |
| V19 | Sync Clipper | 25000010 | 6AG5 | 7BD | |
| V20 | Vert. Buffer-Vert. Osc. | 25000110 | 6SN7GT | 8BD | |
| V21 | Vert. Amp. | 25000110 | 6SN7GT | 8BD | |
| V22 | Horiz.Sync.Disc. | 25000020 | 6AL5 | 6BT | |
| V23 | Horiz. AFC | 25000120 | 6AQ7 | 8N | |
| V24 | Horiz. Osc. | 25000100 | 6K6GT | 7S | |
| V25 | Horiz. Disch.-Time Delay Rect. | 25000130 | 12AU7 | 9A | |
| V26 | Horiz. Output | 25000140 | 6BG6G | 5BT | |
| V27 | Damper | 25000160 | 5V4G | 5L | |
| V28 | Hi. Volt. Rect. | 25000150 | 1B3GT | 3C | |
| V29 | Hi. Volt. Rect. | 25000150 | 1B3GT | 3C | |
| V30 | Bias Rectifier | 25000170 | 6X4 | 5BS | |
| V31 | Bias Rectifier | 25000170 | 6X4 | 5BS | |
| V32 | Lo Volt. Rect. | 25000060 | 5U4G | 5T | |
| V33 | Lo Volt. Rect. | 25000060 | 5U4G | 5T | |
| V34 | Picture Tube | 25000030 | 16AP4 | | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: DUMONT PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1 | 80 | 350 | 03014080 | AFH16H | UP6AJ242 | | TVL-5 | Filter |
| C2 | 80 | 350 | 03015320 | AFH16H | UP6AJ242 | | TVL-5 | Filter |
| C3A | 40 | 475 | 03016170 | AF8X815B | UP9CJ - 1064 | | | ◓ Filter |
| B | 40 | 400 | | | | | | ■ Filter |
| C | 25 | 50 | | | | | | ▲ Vert. Output Cath. Bypass |
| C4 | 1000 | 6 | 03015740 | PRS6/1000 | BRH610 | | TVA-1 | ◓ Osc. Decoupling |
| C5 | 1.5Ω @60 | 4 | 03012250 | PRS6/1000 | BRH620 | | TVA-2 | Horiz. Center. Control Byp. Vert. Center. Control Byp. |
| C6A | 10 | 450 | 03015580 | AF2222J | UP7DJ945 | | TVL-36 | ◓ Low Pass Filter |
| B | 10 | 450 | | | | | | ■ 2nd Video Amp. Plate Byp. |
| C | 10 | 450 | | | | | | ◓ Osc. Decoupling |
| D | 10 | 150 | | | | | | Sync Clipper Decoupling |
| C7A | 10 | 450 | 03015580 | AF2222J | UP7DJ945 | | TVL-36 | ◓ 3rd Video Amp. Screen Byp. |
| B | 10 | 450 | | | | | | ■ 2nd Video Amp. Plate Deb. |
| C | 10 | 450 | | | | | | ▲ 1st Video Amp. Screen Byp |
| D | 10 | 150 | | | | | | Sync Clipper Screen Bypass |
| C8A | 30 | 450 | 03015590 | AF6J205A | UP7CJ429 | | TVL-26 | ◓ Decoupling |
| B | 100 | 25 | | | | | | ■ 3rd Video Amp. Cath. Byp. |
| C | 25 | 25 | | | | | | ▲ Output Cath. Bypass |
| C9 | 8 | 450 | 03001160 | PRS450/8 | BR845 | | TVA-21 | AGC Amp. Decoupling |
| C10 | 4 | 150 | 03013670 | PRS150/4 | BR415 | | UT-41 | Bias Filter |
| C11A | 70 | 175 | 03016040 | | | | D-14948 | Filter Red Pos. |
| B | 70 | 175 | | | | | | |
| C12 | 25 | 50 | 03000040 | PRS50/25 | BR255 | | TVA-15 | Hor. Output Cath. Byp. |
| C13 | 25 | 25 | 03015310 | | | | | Hor. AFC Cath. Byp. † |
| C14 | 470 | | 03014590 | | | GP2K-470 | | RF Coupling |
| C15 | 470 | | 03014590 | | | GP2K-470 | | RF Fil. Bypass |
| C16 | 470 | | 03014600 | | | GP2K-470 | | RF Bypass |
| C17 | 15 | | 03014580 | | | GP1K-15 | | RF Coupling |
| C18 | 3-12 | | 03014490 | | | 557-NP0-5-12 | | Variable Padder |
| C19 | 3-12 | | 03014490 | | | 557-NP0-5-12 | | Variable Padder |
| C20 | 3-12 | | 03014490 | | | 557-NP0-5-12 | | Variable Padder |
| C21 | 15 | | 03014580 | | | GP1K-15 | | RF Coupling |
| C22 | 470 | | 03014590 | | | GP2K-470 | | AGC Filter |
| C23 | 470 | | 03014590 | | | GP2K-470 | | Mixer Fil. Bypass |
| C24 | 470 | | 03014600 | | | GP2K-470 | | Mixer Screen Bypass |
| C25 | 1 | | 03012150 | | | | | Osc. Coupling |
| C26 | 5 | | 03014610 | | | NP0K-5 | | Osc. Grid Cap. |
| C27 | 2-12 | | 03014890 | | | TS2A-N500-3-12 | | Variable Trimmer |
| C28 | 470 | | 03014590 | | | GP2K-470 | | Osc. Fil. Bypass |
| C29 | 470 | | 03014600 | | | GP2K-470 | | RF Bypass |
| C30 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Mixer Plate Dec. |
| C31 | 100 | | 03014380 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | IF Coupling |
| C32 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AGC Filter |
| C33 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 1st V. IF Dec. |
| C34 | 100 | | 03014380 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | IF Coupling |
| C35 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AGC Filter |
| C36 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 2nd V. IF Dec. |
| C37 | 20 | | 03013800 | | 5R542 | NP0K-20 | MS-42 | Fixed Trimmer |
| C38 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | IF Coupling |
| C39 | 10 | | 03015270 | 1469-00001 | 5R541 | NP0K-10 | MS-41 | Fixed Trimmer |
| C40 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 3rd V. IF Cath. Byp. |

## CAPACITORS (CONT.)

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: DUMONT PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C41 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 3rd V. IF Decoupling |
| C42 | .05 | 200 | 03000950 | P288-05 | GT2S5 | | TM-15 | AGC Filter |
| C43 | 10 | | 03013080 | 1468-00001 | 5W5Q1 | NP0K-10 | MS-41 | V. Diode Filter |
| C44 | 47 | | 03012730 | 1469-00005 | 5R5Q5 | NP0M-50 | MS-45 | Fixed Trimmer |
| C45 | .1 | 400 | 03014040 | P488-1 | GT4P1 | | TM-1 | Video Coupling |
| C46 | .1 | 200 | 03013810 | P288-1 | GT2P1 | | TM-1 | " " |
| C47 | .1 | 600 | 03014040 | P688-1 | GT6P1 | | TM-1 | Video Coupling |
| C48 | .05 | 200 | 03000950 | P288-05 | GT2S5 | | TM-15 | " " |
| C49 | .5 | 400 | 03013910 | 484-5 | GT4P5 | | TC-5 | Pic. Tube Cath. Bypass |
| C50 | .1 | 200 | 03000950 | P288-1 | GT2P1 | | TM-1 | AGC Filter * |
| C51 | 1000 | | 03013940 | 1468-001 | 1W5D1 | GP2L-001 | 1FM-21 | Hor. Osc. Coupling |
| C52 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AGC Coupling |
| C53 | .01 | 400 | 03001450 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Hor. Osc. Coupling |
| C54 | 39 | | | 1468-00004 | 5W5Q4 | GP1K-39 | 1FM-44 | AGC Diode Filter † |
| C55 | .01 | 400 | 03001450 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | AGC Filter |
| C56 | 5 | | 03014610 | 1468-000006 | 5W5V6 | NP0K-5 | MS-55 | B. IF Coupling |
| C57 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AVC Filter |
| C58 | 2.5 | | 03002720 | | | | | Fixed Trimmer |
| C59 | 4700 | 500 | 03033060 | 1467-005 | 1D5D5 | GP2M-0047 | 1FM-25 | 1st S. IF Screen Byp. |
| C60 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 1st S. IF Screen Byp. |
| C61 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AVC Filter |
| C62 | 2.5 | | 03002720 | | | | | Fixed Trimmer |
| C63 | 4700 | 500 | 03033060 | 1467-005 | 1D5D5 | GP2M-0047 | 1FM-25 | 2nd S. IF Screen Bypass |
| C64 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 2nd S. IF Decoupling |
| C65 | 10 | | 03013080 | 1468-00001 | 5W5Q1 | GP1K-10 | MS-41 | S. IF Coupling |
| C66 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AVC Filter |
| C67 | .05 | 200 | 03000950 | P288-05 | GT2S5 | | TM-15 | " " |
| C68 | 4700 | 500 | 03033060 | 1467-005 | 1D5D5 | GP2M-0047 | 1FM-25 | Limiter Screen Bypass |
| C69 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Limiter Decoupling |
| C70 | 47 | | 03012730 | 1468-00005 | 5W5Q5 | GP1K-47 | 1FM-45 | RF Bypass |
| C71 | 47 | | 03012730 | 1468-00005 | 5W5Q5 | GP1K-47 | 1FM-45 | " " |
| C72 | 470 | | 03014420 | 1468-0005 | 5W5T5 | GP2K-470 | 1FM-35 | De-emphasis |
| C73 | .05 | 200 | 03000950 | P288-05 | GT2S5 | | TM-15 | Tuning Ind. Filter |
| C74 | .02 | 400 | 03001460 | P488-02 | GT4S2 | | TM-12 | Audio Coupling |
| C75 | .01 | 400 | 03001450 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Tone Compensation |
| C76 | 10000 | | 03015920 | P488-01 | GT4S1 | 821-01 | 36C1 | Audio Coupling |
| C77 | .01 | 400 | 03001450 | P488-01 | GT4S1 | GP2-335-01 | 36C1 | Tone Compensation |
| C78 | .05 | 400 | 03014020 | P488-05 | GT4S5 | | TM-15 | Audio Coupling |
| C79 | 330 | 500 | 03020180 | 1468-0003 | 5W5T3 | GP2K-330 | 1FM-335 | Output Grid Bypass |
| C80 | .005 | 600 | 03001570 | P688-005 | GT6D5 | | TM-25 | Output Plate Bypass |
| C81 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Decoupling |
| C82 | 5000 | | 03015610 | 1467-005 | 1D5D5 | 811-005 | 29C1 | RF Bypass |
| C83 | .01 | 400 | 03001450 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Sync. Coupling |
| C84 | .01 | 400 | 03001450 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | " " |
| C85 | .005 | 600 | 03001570 | P688-005 | GT6D5 | GP2M-005 | TM-25 | Integrator Net. |
| C86 | .01 | 400 | 03001450 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | " " |
| C87 | .02 | 400 | 03015940 | P488-02 | GT4S2 | | TM-12 | Vert. Osc. Grid Cap. |
| C88 | .1 | 400 | 03003400 | P488-1 | GT4P1 | | TM-1 | Vert. Discharge |
| C89 | .1 | 400 | 03014040 | P488-1 | GT4P1 | | TM-1 | Vert. Sweep Coupling |
| C90 | 47 | | 03012730 | 1468-00005 | 5W5Q5 | GP1K-47 | 1FM-45 | Hor. Sync. Coupling |
| C91 | 10000 | 300 | 03033420 | 1467-01 | 1D3S1 | GP2-335-01 | 1FM-11 | Fixed Trimmer |
| C92 | .005 | 600 | 03001570 | P688-005 | GT6D5 | GP2M-005 | TM-25 | AFC Filter |
| C93 | .1 | 200 | 03013910 | P288-1 | GT2P1 | | TM-1 | " " |
| C94 | 1000 | 300 | 03033420 | 1467-01 | 1D3S1 | GP2-335-01 | 1FM-11 | Phase Shifter |
| C95 | .005 | 600 | 03001570 | P688-005 | GT6D5 | GP2M-005 | TM-25 | AFC Coupling |
| C96 | .05 | 200 | 03000950 | P288-05 | GT2S5 | | TM-15 | Hor. AFC Screen Bypass |
| C97 | .005 | 600 | 03001570 | P688-005 | GT6D5 | GP2M-005 | TM-25 | Hor. Osc. Grid Cap |
| C98 | .05 | 400 | 03014020 | P488-05 | GT4S5 | | TM-15 | Hor. Osc. Screen Bypass |
| C99 | .01 | 600 | 03012560 | P688-01 | GT6S1 | | TM-11 | ACC Anode Bypass |
| C100 | .05 | 600 | 03015330 | P688-05 | GT6S5 | | TM-15 | Line Filter |
| C101 | .05 | 600 | 03015330 | P688-05 | GT6S5 | | TM-15 | Line Filter |
| C102 | 330 | 500 | 03020180 | | | GP2K-330 | | Differentiator Net |
| C103 | .01 | 400 | 03001450 | P488-01 | GT4S1 | | TM-11 | Hor. Sweep Coupling |
| C104 | 2200 | 500 | 03029080 | | | GP2M-0022 | | Hor. Discharge |
| C105 | .01 | 600 | 03012560 | P688-01 | GT6S1 | | TM-11 | Hor. Sweep Coupling |
| C106 | .05 | 600 | 03015370 | P688-05 | GT6S5 | | TM-15 | Hor. Output Screen Bypass |
| C107 | .035 | 1000 | 03014060 | P1088-033 | | | | Damper Filter |
| C108 | .05 | 1000 | 03015650 | P1088-05 | GT16S5 | | TR-15 | Damper Filter |
| C109 | 47 | 5000 | 03015930 | | | | | Fixed Trimmer |
| C110 | 500 | 10000 | 03014410 | | | 410-500 | | HV Filter |
| C111 | 500 | 10000 | 03014410 | | | 410-500 | | HV Filter |
| C112 | 500 | 10000 | 03014410 | | | 410-500 | | HV Filter |

* Some Models Use .05MFD In This Application.
† Not Used In All Models.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: DUMONT PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| R1A | 200KΩ | ½ | 01007310 | Q13-130 | M-64-Z | Tone control |
| B | Switch | | Not Req. | 76-1 | SW-A | Attach To R1A Per Instructions |
| R2 | 1 Meg. | ½ | 01007300 | Q18-137X | T-103 | Volume control, tapped @ 100KΩ |
| R3 | 1000Ω | 25 | 01007330 | | PW-25-1000 | Focus control |
| R4 | 100KΩ | ½ | 01007350 | Q11-128 | M-49-S | Brightness control |
| R5 | 100Ω | ½ | 01007260 | Q11-108 | M-8-S | Contrast control |
| R6 | 25Ω | 4 | 01007800 | | 10-25 | Horiz. Centering Control, Wire Wound |
| R7 | 500KΩ | ½ | 01007930 | Q11-133 | M-58-S | Vert. Hold Control |
| R8 | 4 Meg. | ½ | 01008570 | | 1008570 | Vert. Size Control |
| R9 | 2000Ω | 2 | 01007640 | W-2000 | 43-2000 | Vert. Linearity Control, Wire Wound |
| R10 | 25Ω | 2 | 01007710 | W-25 | 43-25 | Vert. Centering Control, Wire Wound |
| R11 | 1000Ω | ½ | 01007500 | Q11-108 | M-8-S | AGC Control |
| R12 | 500KΩ | ½ | 01007400 | Q11-133 | M-58-S | Picture Tube Sensitivity Control |
| R13 | 25KΩ | ½ | 01007920 | Q11-120 | M-40-S | Horiz. Drive Control |

## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: DUMONT PART No. | IRC PART No. | IDENTIFICATION CODES ALL RESISTORS ±10% UNLESS OTHERWISE STATED |
|---|---|---|---|---|---|
| R14 | 200Ω | ½ | 02030610 | | RF Cathode 5% |
| R15 | 10KΩ | 2 | 02037890 | | RF Plate |
| R16 | 12KΩ | ½ | 02031900 | BTS-12K | RF Plate Coil Shunt |
| R17 | 12KΩ | ½ | 02031900 | BTS-12K | Mixer Grid Coil Shunt |
| R18 | 1 Meg. | ½ | 02032130 | BTS-1 Meg. | Mixer Grid |
| R19 | 330KΩ | ½ | 02032070 | BTS-330K | Mixer Screen |
| R20 | 100KΩ | ½ | 02032010 | | AGC Network |

## RESISTORS (CONT.)

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: DUMONT PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R21 | 12KΩ | ½ | 02031900 | BTS-12K | Osc. Grid |
| R22 | 10KΩ | 2 | 02037990 | | Osc. Plate |
| R23 | 8200Ω | ½ | 02030700 | | Mixer Plate Transformer Shunt 5% |
| R24 | 47KΩ | ½ | 02031970 | | Mixer Plate Decoupling |
| R25 | 5600Ω | ½ | 02030660 | | 1st Video IF Grid 5% |
| R26 | 68KΩ | ½ | 02030920 | | 1st Video IF Transformer Shunt 5% |
| R27 | 22KΩ | 2 | 02037930 | | 1st Video IF Decoupling |
| R28 | 22KΩ | 2 | 02037930 | | 1st Video IF Decoupling |
| R29 | 10KΩ | ½ | 02031890 | BTS-10K | AGC Network |
| R30 | 10KΩ | ½ | 02031890 | BTS-10K | AGC Network |
| R31 | 3000Ω | ½ | 02030590 | | 2nd Video IF Grid 5% |
| R32 | 68Ω | ½ | 02031630 | | 2nd Video IF Cathode |
| R33 | 7500Ω | ½ | 02030690 | | 2nd Video IF Transformer Shunt 5% |
| R34 | 22KΩ | 2 | 02037930 | | 2nd Video IF Decoupling |
| R35 | 22KΩ | 2 | 02037930 | | 2nd Video IF Decoupling |
| R36 | 15KΩ | ½ | 02030760 | BTS-15K | 3rd Video IF Grid Coil Shunt 5% |
| R37 | 100Ω | ½ | 02031650 | | 3rd Video IF Cathode |
| R38 | 10KΩ | ½ | 02031890 | | 3rd Video IF Transformer Shunt |
| R39 | 22KΩ | 2 | 02037930 | | 3rd Video IF Decoupling |
| R40 | 22KΩ | 2 | 02037930 | | 3rd Video IF Decoupling |
| R41 | 1.2 Meg | ½ | 02032140 | | AGC Network See Note 1 |
| R42 | 5100Ω | ½ | 02030650 | | Video Det. Diode Load 5% |
| R43 | 20KΩ | ½ | 02037790 | BTS-22K-5% | Peaking Coil Shunt 5% |
| R44 | 33Ω | ½ | 02031590 | | 1st Video Amp. Cathode |
| R45 | 43000Ω | ½ | 02030630 | BTS-3900-5% | 1st Video Amp. Plate 5% |
| R46 | 27KΩ | 2 | 02037940 | BT-2-27K | 1st Video Amp. Screen |
| R47 | 1000Ω | ½ | 02031770 | BTS-1000 | Filter |
| R48 | 4700Ω | ½ | 02030850 | BTS-4700 | Peaking Coil Shunt |
| R49 | 10KΩ | ½ | 02031890 | BTS-10K | Peaking Coil Shunt |
| R50 | 470KΩ | ½ | 02032090 | BTS-420K | 2nd Video Amp. Grid |
| R51 | 5600Ω | 1 | 02034860 | BTA-5600 | Filter |
| R52 | 470KΩ | ½ | 02032090 | BTS-470K | Video Output Grid |
| R53 | 560Ω | 1 | 02034740 | BTA-560 | Video Output Cathode |
| R54 | 4700Ω | 2 | 02037850 | BT-2-4700 | Video Output Plate |
| R55 | 3900Ω | 2 | 02037840 | BT-2-3900 | Video Output Plate |
| R56 | 27KΩ | 1 | 02034940 | BTA-27K | Filter |
| R57 | 10KΩ | ½ | 02031890 | BTS-10K | Phase Correction |
| R58 | 270KΩ | ½ | 02032060 | BTS-270K | Picture Tube Grid |
| R59 | 1 Meg. | ½ | 02032130 | BTS-1 Meg. | DC Restorer Load. |
| R60 | 220KΩ | ½ | 02032050 | BTS-220K | Voltage Divider |
| R61 | 390KΩ | ½ | 02032080 | BTS-390K | Voltage Divider |
| R62 | 100KΩ | ½ | 02032010 | BTS-100K | Voltage Divider |
| R63 | 1.2 Meg | ½ | 02032140 | BTS-1.2 Meg | AGC Network |
| R64 | 1.2 Meg | ½ | 02032140 | BTS-1.2 Meg | AGC Diode Load |
| R65 | 1.2 Meg | ½ | 02032140 | BTS-1.2 Meg | AGC Diode Load |
| R66 | 220KΩ | ½ | 02032050 | BTS-220K | AGC Network |
| R67 | 270KΩ | ½ | 02032060 | BTS-270K | AGC Amp. Plate |
| R68 | 220KΩ | ½ | 02032050 | BTS-220K | AGC Amp. Grid |
| R69 | 470KΩ | ½ | 02032090 | BTS-470K | AGC Amp. Grid Filter |
| R70 | 470KΩ | ½ | 02032090 | BTS-470K | AGC Network See Note 1 |
| R71 | 47KΩ | ½ | 02031970 | BTS-47K | Voltage Divider |
| R72 | 470Ω | ½ | 02031730 | BTS-470 | Voltage Divider |
| R73 | 560Ω | ½ | 02034740 | BTS-560 | AGC Amp. Cathode See Note 4 |
| R74 | 1000Ω | ½ | 02031770 | BTS-1000 | AGC Amp. Cathode |
| R75 | 100KΩ | 2 | 02038010 | BT-2-100K | Voltage Divider |
| R76 | 22KΩ | ½ | 02031930 | BTS-22K | 1st Sound IF Transformer Shunt |
| R77 | 100KΩ | ½ | 02032010 | BTS-100K | Bias Network |
| R78 | 82Ω | ½ | 02031640 | | 1st Sound IF Cathode |
| R79 | 33KΩ | ½ | 02034950 | | 1st Sound IF Screen |
| R80 | 1000Ω | 1 | 02031770 | | 1st Sound IF Decoupling |
| R81 | 100KΩ | ½ | 02032010 | BTS-100K | Bias Network |
| R82 | 82Ω | ½ | 02031640 | | 2nd Sound IF Cathode |
| R83 | 33KΩ | 1 | 02034950 | | 2nd Sound IF Screen |
| R84 | 1000Ω | ½ | 02031770 | | 2nd Sound IF Decoupling |
| R85 | 1.2 Meg | ½ | 02032140 | BTS-1.2 Meg | Bias Filter Network |
| R86 | 270KΩ | ½ | 02032060 | | Limiter Grid |
| R87 | 82Ω | ½ | 02031640 | | Limiter Cathode |
| R88 | 33KΩ | 2 | 02037950 | | Limiter Screen |
| R89 | 8200Ω | 1 | 02034880 | | Limiter Decoupling |
| R90 | 10KΩ | ½ | 02031890 | BTS-10K | Voltage Divider |
| R91 | 2.2Ω | 1 | 02102560 | BW-1-2.2 | Pilot Lamp Dropping |
| R92 | 100KΩ | ½ | 02032010 | BTS-100K | Disc. Diode Load |
| R93 | 100KΩ | ½ | 02032010 | BTS-100K | Disc. Diode Load |
| R94 | 100KΩ | ½ | 02032010 | BTS-100K | De-emphasis |
| R95 | 1.2 Meg | ½ | 02032140 | BTS-1.2 Meg | Tuning Ind Grid |
| R96 | 3300Ω | ½ | | BTS-3300 | Tuning Ind. Cathode |
| R97 | 22KΩ | ½ | 02031930 | BTS-22K | Tone Compensation |
| R98 | 680KΩ | ½ | 02032110 | BTS-680K | Tone Compensation See Note 3 |
| R99 | 1.2 Meg. | ½ | 02032140 | BTS-1.2 Meg | AF Grid |
| R100 | 100KΩ | ½ | 02032010 | BTS-100K | AF Plate |
| R101 | 220KΩ | ½ | 02032050 | BTS-220K | Output Grid |
| R102 | 220KΩ | ½ | 02032050 | BTS-220K | Output Grid |
| R103 | 270Ω | 2 | 02037700 | BW-2-270 | Output Cathode |
| R104 | 1200Ω | 2 | 02037780 | BW-2-1200 | Filter |
| R105 | 1200Ω | 2 | 02037780 | BW-2-1200 | Filter |
| R106 | 8200Ω | 2 | 02037880 | BT-2-8200 | Voltage Dropping |
| R107 | 8200Ω | 2 | 02037880 | BT-2-8200 | Voltage Dropping |
| R108 | 1.5 Meg. | ½ | 02032150 | BTS-1.5 Meg | Sync. Clipper Grid |
| R109 | 22KΩ | ½ | 02031930 | BTS-22K | Isolation |
| R110 | 22KΩ | ½ | 02031930 | BTS-22K | Sync. Clipper Plate |
| R111 | 100KΩ | 2 | 02038010 | BT-2-100K | Filter |
| R112 | 15KΩ | ½ | 02030780 | BTS-15K-5% | Voltage Divider 5% |
| R113 | 27KΩ | ½ | 02034940 | BTS-27K | Voltage Divider |
| R114 | 100KΩ | 2 | 02038010 | BT-2-100K | Filter |
| R115 | 10KΩ | ½ | 02031890 | BTS-10K | Isolation |
| R116 | 1.2 Meg. | ½ | 02032140 | BTS-1.2 Meg | Vert. Buffer Grid |
| R117 | 22000Ω | ½ | 02031810 | BTS-2200 | Vert. Buffer Cathode |
| R118 | 10KΩ | ½ | 02031890 | BTS-10K | Integrator |
| R119 | 10KΩ | ½ | 02031890 | BTS-10K | Integrator |
| R120 | 10KΩ | ½ | 02031890 | BTS-10K | Integrator |
| R121 | 330KΩ | ½ | 02032070 | BTS-330K | Vert. Osc. Grid |
| R122 | 12KΩ | ½ | 02031900 | BTS-12K | Vert. Osc. Transformer Shunt |
| R123 | 820KΩ | ½ | 02032120 | BTS-820K | Vert. Osc. Plate |
| R124 | 43000Ω | ½ | 02030630 | BTS-3900-5% | Vert. Peaking 5% |
| R125 | 2.2 Meg. | ½ | 02032170 | BTS-2.2 Meg. | Vert. Amp. Grid |
| R126 | 220Ω | 1 | 02034690 | BW-1-220 | Vert. Amp. Cathode |
| R127 | 10KΩ | 2 | 02037890 | BT-2-10K | Filter |
| R128 | 10KΩ | 2 | 02037890 | BT-2-10K | Filter |

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS (CONT.)

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES | |
|---|---|---|---|---|---|---|
| | RESISTANCE | WATTS | DUMONT PART No. | IRC PART No. | | |
| R129 | 47KΩ | ½ | 02031970 | BTS-47K | Bias Net | See Note 3 |
| R130 | 56KΩ | 2 | 02037980 | BT-2-56K | Bleeder | See Note 3 |
| R131 | 56KΩ | 2 | 02037980 | BT-2-56K | Bleeder | See Note 3 |
| R132 | 47KΩ | ½ | 02031970 | BTS-47K | Bias Net | See Note 3 |
| R133 | 470KΩ | ½ | 02032093 | BTS-470K | Sync. Disc. Load | |
| R134 | 470KΩ | ½ | 02032090 | BTS-470K | Sync. Disc. Load | |
| R135 | 470KΩ | ½ | 02032090 | BTS-470K | Horiz. AFC Filter Network | |
| R136 | 470Ω | ½ | 02031730 | BTS-470 | Horiz. AFC Grid | |
| R137 | 10Ω | ½ | 02031530 | BW-½-10 | Horiz. AFC Cathode | |
| R138 | 150Ω | ½ | 02031670 | BW-½-150 | Horiz. AFC Cathode | See Note 1 |
| R139 | 22KΩ | 2 | 02037930 | BT-2-22K | Horiz. AFC Plate | |
| R140 | 47KΩ | 2 | 02037970 | BT-2-47K | Horiz. AFC Screen | |
| R141 | 27KΩ | 1 | 02034940 | BTA-27K | Voltage Divider | |
| R142 | 47KΩ | ½ | 02031970 | BTS-47K | Horiz. Osc. Grid | |
| R143 | 10KΩ | 2 | 02037890 | BT-2-10K | Horiz. Osc. Screen | |
| R144 | 5000Ω | 10 | 02107960 | AB-5000 | Horiz. Osc. Plate | Wire Wound |
| R145 | 6800Ω | ½ | 02031870 | BTS-6800 | Differentiator | |
| R146 | 220KΩ | ½ | 02032050 | BTS-220K | Horiz. Discharge Grid | |
| R147 | 180KΩ | 2 | 02037020 | BT-2-180K-5% | Horiz. Discharge Plate | 5% |
| R148 | 2200Ω | ½ | 02031810 | BTS-2200 | Horiz. Peaking | |
| R149 | 470Ω | ½ | 02031730 | | Parasitic Supp. | |
| R150 | 1 Meg. | ½ | 02032130 | BTS-1 Meg. | Horiz. Output Grid | |
| R151 | 47Ω | 2 | 02037610 | BW-2-47 | Horiz. Output Cathode | |
| R152 | 47Ω | ½ | 02031610 | | Parasitic Supp. | |
| R153 | 12KΩ | 5 | 02111030 | AB-12K | Horiz. Output Screen, Wire Wound | |
| R154 | 8500Ω | 25 | 02018861 | | Damper Filter, Wire Wound | See Note 2 |
| R155 | 4.7Ω | ½ | 02100810 | | H V Filament | Wire Wound |
| R156 | 4.7Ω | ½ | 02100810 | | HV Filament | Wire Wound |
| R157 | 2 Meg. | 5 | 02019500 | | Voltage Divider | Wire Wound |
| R158 | 100KΩ | 1 | 02035010 | | HV Filter | |
| R159 | 6800Ω | 1 | 02034870 | BTA-6800 | Filter | |
| R160 | 10Ω | ½ | 02031530 | BW-½-10 | Time-Delay Rect. Filament | |
| R161 | 250Ω | 5 | 02107140 | AB-250 | Filter | |
| R162 | 100KΩ | 1 | 02035540 | BTA-100K | Bleeder | Wire Wound |
| R163 | 100KΩ | 1 | 02035540 | BTA-100K | Bleeder | 20% |
| R164A | 200Ω | 15 | 02017600 | DG-200 | Bleeder | 20% |
| R164B | 250Ω | 10 | | AB-250 | Series Focus Coil | Wire Wound |
| R165 | 1280Ω | 25 | 02017610 | | Focus Coil Shunt | Wire Wound |
| R166 | 200Ω | ½ | 02030310 | | Filter | Wire Wound |
| R167 | 470Ω | 1 | | BW-½-220-5% | Bias Net | See Note 3 5% |
| R168 | 33KΩ | ½ | 02034950 | BTA-470 | Video Output Plate | See Note 1 |
| | | | | BTS-33K | AGC Amp. Plate Decoupling | |

Note 1. Not Used On All Models.
Note 2. Tapped @ 6500Ω and 7500Ω.
Note 3. Used Only On Models Starting With Serial No. 8,501,001.
Note 4. Some Models May Use 390Ω Resistor In This Application.

## TRANSFORMER (POWER)

| ITEM No. | RATING | | | | REPLACEMENT DATA | | | |
|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. 1 | SEC. 2 | SEC. 3 | DUMONT PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. |
| T1 | 117VAC @ 2.7A | 780VCT @ .300A DC<br>SEC. 4<br>12.6VCT @ 5.2A | 5VAC @ 6A | 5VAC @ 2A | 20003891 | | TP-365 | P-3166 |

## TRANSFORMER (SWEEP CIRCUITS)

| ITEM No. | RATING DC RESISTANCE | | REPLACEMENT DATA | | | | NOTES |
|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | DUMONT PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | |
| T2 | 68Ω Tap @ 39Ω | 65ΩTap @ 19Ω | 20003921 | | | | Hor. Osc. Transformer |
| T3 | 300Ω | SEC. 1 600Ω<br>SEC. 2 770Ω | 20003931 | | | | Vert. Osc. Transformer |
| T4 | 420ΩTap @ 177Ω | SEC. 1 10ΩTap @ .9Ω<br>SEC.2 &3 0Ω | 20003951 | | | | Hor. Output Transformer |
| T5 | 670Ω | 8.5Ω | 20003941 | A-8115 | TSO-1 | A-3035 | Vert. Output Transformer |
| T6A | 14Ω | | 21004241 | DY-1 | | | Hor. Deflection Coil |
| B | 60Ω | | | | | | |
| T7 | 410Ω | | 21004251 | | | | Vert. Deflection Coil<br>Focus Coil |

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | RATING IMPEDANCE | | RATING DC RES. | | REPLACEMENT DATA DUMONT PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| T8 | 5KΩ | 3.5Ω | 360Ω | .4Ω | Part Of 18002761 | A-3849 | RO-302 | A-2902 | |

## SPEAKER

| ITEM No. | RATING | | REPLACEMENT DATA DUMONT PART No. | JENSEN PART No. | QUAM PART No. | NOTES |
|---|---|---|---|---|---|---|
| | FIELD RES. | V. C. IMP. | | | | |
| SP1A | PM | 3.5Ω | 18002761‡<br>18002771# | ST-109<br>MODEL P6-W | 6A15 | ‡ Used In Table Models<br># Used In Console Models |
| B | PM | | | | | |
| | CONE DIA. | V. C. DIA. | | | | |
| SP2A | 5 7/8" | 9/16" | | | | |
| B | 12" | | | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## FILTER CHOKE

| ITEM No. | RATINGS | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | TOTAL DIRECT CURRENT | D. C. RESISTANCE | INDUCTANCE (0 CURRENT 1000 ~) | DUMONT PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | |
| L1 | .295A | 83Ω | 4.5Henries | 21004021 | C-2326§ | R-3300§ | | § Drill New Mtg. Holes. |

## COILS (RF-IF)

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | DUMONT PART No. | MEISSNER PART No. | |
| L2 | Ant. Coil | 0Ω | | 21004071 | | |
| L3 | RF End Inductor | 0Ω | | 21004031 | | |
| L4 | RF Plate Coil | 0Ω | | | | Part Of Inductuner. |
| L5 | Band Pass Coil | 0Ω | | 21004081 | | |
| L6 | Mixer End Inductor | 0Ω | | 21004061 | | |
| L7 | Mixer Grid Coil | 0Ω | | | | Part Of Inductuner. |
| L8 | Osc. End Inductor | 0Ω | | 21004051 | | |
| L9 | Osc. Coil | 0Ω | | | | Part Of Inductuner. |
| L10 | Osc. Shunt Coil | 0Ω | | 21004041 | | |
| L11 | 1st Video IF | .8Ω | | 21004137 | | |
| L12 | RF Choke | .2Ω | | 21004141 | | |
| L13 | 1st Video IF Coupling | 0Ω | | 21004136 | | |
| L14 | 2nd Video IF | .8Ω | | 21004138 | | |
| L15 | RF Choke | .2Ω | | 21004141 | | |
| L16 | 2nd Video IF Coupling | .1Ω | | 21004135 | | |
| L17 | 3rd Video IF | .8Ω | | 21004138 | | |
| L18 | 21.9MC Sound Trap | 0Ω | | 21003971 | | |
| L19 | Adjacent Channel Sound Trap | 0Ω | | 21003971 | | |
| L20 | 3rd Video IF | 0Ω | | 21004135 | | |
| L21 | 4th Video IF | .8Ω | | 21004137 | | |
| L22 | 4th Video IF | 0Ω | | 21004136 | | |
| L23 | Peaking Coil | 1.5Ω | | 21004465 | | |
| L24 | Peaking Coil | 5Ω | | 21004462 | | |
| L25 | Peaking Coil | 6Ω | | 21004464 | | |
| L26 | Peaking Coil | 5Ω | | 21004463 | | |
| L27 | 4.5MC Trap | 1Ω | | 21004121 | | |
| L28 | Peaking Coil | 6Ω | | 21004464 | | |
| L29 | 1st Sound IF | 0Ω | 0Ω | 20003911 | | |
| L30 | 2nd Sound IF | 0Ω | 0Ω | 20003911 | | |
| L31 | 3rd Sound IF | 0Ω | 0Ω | 20003911 | | |
| L32 | Disc. Trans | .1Ω | 0Ω | 20003901 | | |
| L33 | Hor. Size | .1Ω | | 21004171 | | |
| L34 | Hor. Size | .1Ω | | 21004181 | | |
| L35 | Hor. Linearity | 57Ω | | 21004350 | | 5.5 To 20 Millihenries |

## DIAL LIGHTS

| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA | | NOTES |
|---|---|---|---|---|---|---|---|
| | | | | | DUMONT PART No. | | |
| M1 | Bayonet | 6-8 | .15 | Brown | 12001310 | | Type #47 |
| M2 | Bayonet | 6-8 | .15 | Brown | 12001310 | | Type #47 |
| M3 | Bayonet | 6-8 | .15 | Brown | 12001310 | | Type #47 |

## MISCELLANEOUS

| ITEM No. | PART NAME | DUMONT PART No. | NOTES |
|---|---|---|---|
| M4 | RF Tuner | | |
| M5 | Selector Switch | 05003041 | |
| M6 | Vert. Positioning Switch | 05000120 | Also 05003050 |
| M7 | Hor. Size Sw. | 05002981 | |
| M8 | Relay | 05002410 | Also 05003260 |
| M9 | Fuse | 11001100 | Type GJV .25A |
| M10 | Fuse | 11000800 | Type MTH 5A |
| | Cabinet | 99005101 | Stratford |
| | Cabinet | 99005106 | Blonde Stratford |
| | Cabinet | 99005102 | Westbury. |
| | Cabinet | 99005104 | Whitehall. |
| | Safety Glass | 45000043 | All Models. |
| | Knob | 45000032 | RF Tuner. For Stratford And Westbury. |
| | Knob | 45000023 | For Stratford And Westbury. |
| | Knob | 45000022 | For Stratford And Westbury. |
| | Knob | 45000093 | For Whitehall And Blonde Stratford. |
| | Knob | 45000092 | For Whitehall And Blonde Stratford. |

# HORIZONTAL SWEEP ADJUSTMENTS

HORIZONTAL FREQUENCY ADJUSTMENTS

Rotate the horizontal frequency adjustment (B1) until the picture falls out of "sync." Adjust the control to bring the picture back into sync and note the position where this occurs. Repeat the above procedure but in the opposite direction. The correct setting is mid-way between the two points where picture falls into synchronization.

HORIZONTAL PHASING ADJUSTMENT

Reduce the picture width until both edges are visable. Turn up the brightness control and reduce the contrast control so the normally blanked out edges of the picture are visable. Adjust the phasing adjustment (B2) until the normally blanked edges of the raster are of equal width.

HORIZONTAL SIZE AND LINEARITY ADJUSTMENTS

There are two size adjustments, a coarse adjustment which is a switch on the side of the flyback power supply case, and a fine adjustment (B3). Set these two adjustments until picture fills the mask horizontally.

Adjust the horizontal drive control and horizontal linearity adjustment (B4) until the picture is linear in the horizontal plane.

# VERTICAL SWEEP ADJUSTMENTS

Rotate vertical hold control until picture falls out of sync. Adjust control until picture falls out of sync. Adjust control until picture falls back into sync and note this position. Repeat this procedure in opposite direction from above. Mid-way between these positions is the correct setting.

There are two vertical position controls; a coarse control switch on rear of the receiver main chassis, and a fine control adjacent to the switch. Adjust these two controls until the picture is properly centered vertically.

Adjust the vertical size control until picture fills the mask vertically. Adjust the vertical linearity control until picture is linear from top to bottom. Slight readjustment of vertical size control may be necessary.

# MISCELLANEOUS CONTROL ADJUSTMENTS

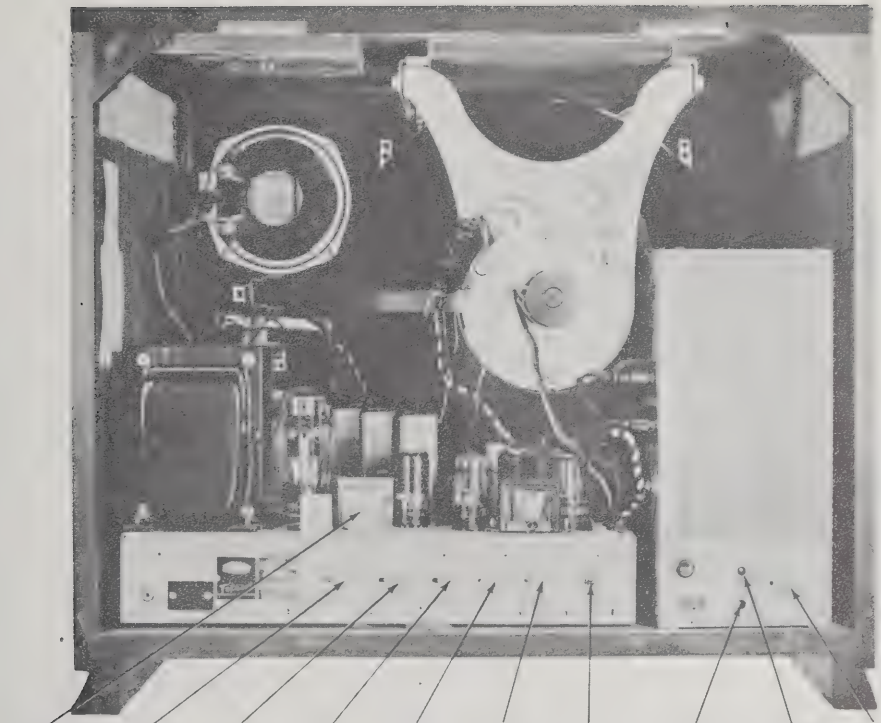
PICTURE TUBE SENSITIVITY CONTROL

If the picture tube is replaced, the picture tube sensitivity control (R12) should be adjusted as follows. Turn the contrast fully counter-clockwise. Adjust brightness control until DC voltmeter connected between brightness control arm and chassis reads 45 volts. Adjust the picture sensitivity control until raster on screen just disappears.

FIELD ADJUSTMENT OF AGC THRESHOLD CONTROL

NOTE: For Shop Adjustment Of This Control, See Page 6.

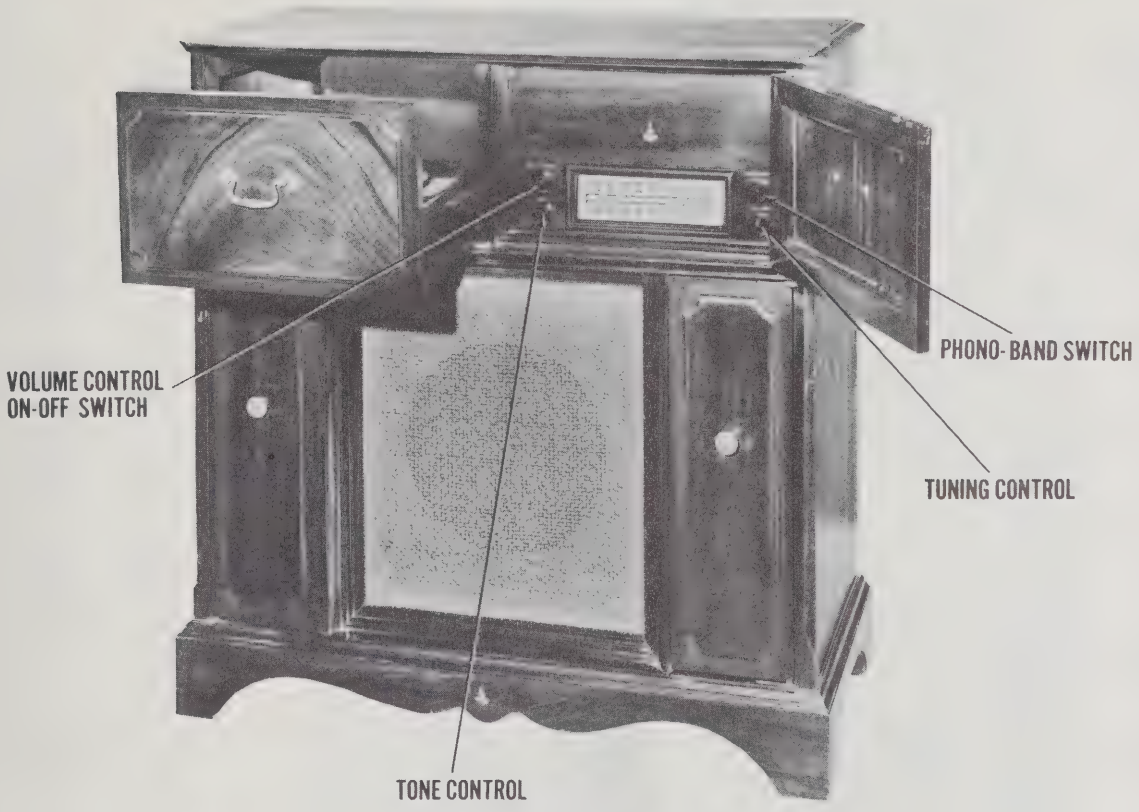
Disconnect antenna. Turn up the contrast control fully and adjust the brightness control so that a raster can be seen. Rotate R11 completely counter-clockwise. At this position a considerable amount of "noise" will be visible on the face of the picture tube. Rotate the control clockwise slowly. It will be noticed that over a portion of the range, the amount of noise is not affected. This is comparable to the condition in the shop, where over the same range of the control, the meter reading is not affected. As the control is further adjusted, it will be noticed that a point is found when the noise starts to decrease and beyond this point decreases very rapidly. The correct setting for the control is immediately before the point where the affect upon the noise is observed.




CABINET-REAR VIEW

# EMERSON
# MODEL 586 (Ch. 120023B, 120083B)

EMERSON
MODEL 586 (Ch. 120023B, 120083B)



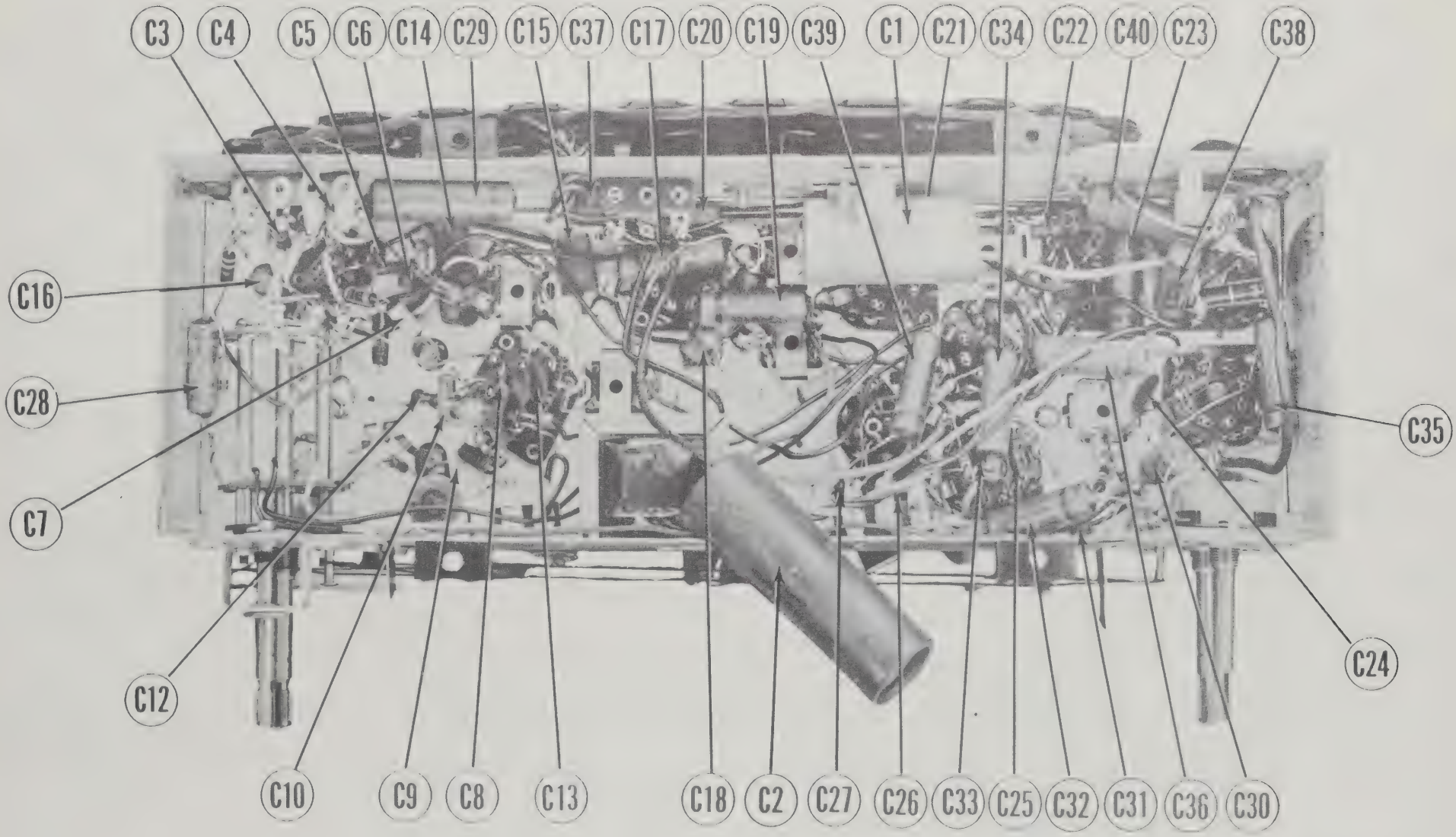

EMERSON
MODEL 586 (Ch. 120023B, 120083B)

| | | | |
|---|---|---|---|
| TRADE NAME | Emerson, Model 586 (Ch. 120023B, 120083B) | | |
| MANUFACTURER | Emerson Radio and Phonograph Corp., 111 8th Ave., New York 11, New York | | |
| TYPE SET | AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna | | |
| TUBES (TEN) | Types 6BA6 FM RF Amp., (Ch. 120023B Only), 6SB7Y Converter, 6SG7 IF Amp., 6SG7 FM 2nd IF Amp., 6SH7 Limiter, 6S8GT DET-AVC-AF, 6AT6 Phase Inverter, (2) 25L6GT Power Output, 25Z6GT Rectifier | | |
| POWER SUPPLY | 105-125 Volts AC | RATING: | .56 Amp., @ 117 Volts |
| TUNING RANGE-BROADCAST | 540-1620KC | FREQ. MOD. | 88-108MC |

**HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana**

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 10/49 SET #72 FOLDER #9


C3
C4
C5
C6
C14
C29
C15
C37
C17
C20
C19
C39
C1
C21
C34
C22
C40
C23
C38
C16
C28
C7
C35
C24
C12
C10
C9
C8
C13
C18
C2
C27
C26
C33
C25
C32
C31
C36
C30

R32
R30
R31
R16
A13
R1
R22
R2
R27
R18
R17
R28
R19
R21
R29
R20
R25
R12
T1
A11
R8
L15
R7
L7
L6
R6
M3
L5
R11
R23
R10
L1
R4
R5
L3
L4
L16
A3
R9
L14
A9
A1
R24
R26
A7
R13
R15
R14

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: EMERSON PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| V1 | FM RF Amp. | 6BA6 | 6BA6 | 7BK | Chassis 120083B Only. |
| V2 | Converter | 6SB7Y | 6SB7Y | 8R | |
| V3 | 1st IF Amp. | 6SG7 | 6SG7 | 8BK | |
| V4 | FM 2nd IF Amp. | 6SG7 | 6SG7 | 8BK | |
| V5 | Limiter | 6SH7 | 6SH7 | 8BK | |
| V6 | DET-AVC-AF | 6S8GT | 6S8GT | 8CB | |
| V7 | Phase Inverter | 6AT6 | 6AT6 | 7BT | |
| V8 | Power Output | 25L6GT | 25L6GT | 7AC | |
| V9 | Power Output | 25L6GT | 25L6GT | 7AC | |
| V10 | Rectifier | 25Z6GT | 25Z6GT | 7Q | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: EMERSON PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1A | 50 | 150 | 925101 | PRSA150/50 | EDL5515 | | TA-505 | Filter |
| B | 50 | 150 | | -50 | | | | Filter |
| C2A | 50 | 150 | 925067 | PRSA150/50 | EDL5515 | | TA-505 | Filter Red |
| B | 50 | 150 | | -50 | | | | Filter Green |
| C3 | 1500 | | 928006 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | Ant. Coupling |
| C4 | 1500 | | 928006 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | Ant. Isolation |
| C5 | 1500 | | 928006 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | FM RF Cath. Bypass Note 1 |
| C6 | 1500 | | 928006 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | FM RF Screen Bypass Note 1 |
| C7 | 75 | | 928015 | 1468-000075 | 5W5Q7 | GP1K-75 | 1FM-475 | RF Coupling Note 1 |
| C8 | 2.2 | | 915005 | | | | | Osc. Coupling |
| C9 | 75 | | 928015 | 1468-000075 | 5W5Q7 | GP1K-75 | 1FM-475 | Osc. Grid Cap |
| C10 | 51 | | 928014 | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | Filament Bypass |
| C11 | 5 | | 928023 | 1469-000005 | 5R5V5 | NP0K-5 | MS-55 | Fixed Trimmer |
| C12 | 15 | | 928016 | | | GP1K-15 | MS-415 | Osc. Feedback |
| C13 | 5000 | | 928109 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | Osc. Anode Bypass |
| C14 | .05 | 200 | 920060 | P288-05 | GT2S5 | | TM-15 | AVC Filter |
| C15 | 470 | 500 | 910014 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | RF Bypass |
| C16 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | RF Bypass |
| C17 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | 1st IF Fil. Bypass |
| C18 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | 1st IF Fil. Bypass |
| C19 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | RF Bypass |
| C20 | .01 | 200 | 920092 | P488-01 | GT2S1 | GP2-335-01 | TM-11 | FM 2nd IF Grid Filter |
| C21 | .01 | 200 | 920092 | P488-01 | GT2S1 | GP2-335-01 | TM-11 | FM 2nd IF Decoupling |
| C22 | 50 | | 928102 | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | Limiter Grid Filter |
| C23 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Limiter Screen Bypass |
| C24 | 5000 | | 928109 | 1467-005 | 1D5D5 | GP2M-005 | 1FM-25 | Limiter Plate Dec. |
| C25 | 100 | | 910010 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | RF Bypass |
| C26 | .001 | 600 | 920514 | P688-001 | GT6D1 | GP2L-001 | TM-21 | De-emphasis |
| C27 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C28 | .001 | 400 | 920514 | P688-001 | GT6D1 | GP2L-001 | TM-21 | Tone Compensation |
| C29 | .05 | 400 | 920030 | P488-05 | GT4S5 | | TM-15 | Phono Isolation |
| C30 | .02 | 200 | 920100 | P488-02 | GT2S2 | | TM-12 | Tone Compensation |
| C31 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C32 | .002 | 600 | 920515 | P688-002 | GT6D2 | GP2M-002 | TM-22 | Tone Compensation |
| C33 | 470 | 500 | 910014 | 1468-0005 | 5W5T5 | GP2K-500 | 1FM-35 | AF Plate Bypass |
| C34 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C35 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C36 | .02 | 400 | 920020 | P488-02 | GT4S2 | | TM-12 | Output Plate Bypass |
| C37 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Speaker Isolation |
| C38 | .005 | 400 | 920180 | P688-005 | GT6D5 | | TM-25 | Rect. Plate Bypass |
| C39 | .01 | 400 | 920090 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Filament Bypass |
| C40 | .05 | 400 | 920030 | P488-05 | GT4S5 | | TM-15 | Line Filter |

Note 1. Used In Chassis 120083B Only.

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: EMERSON PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| R1A | 500KΩ | ½ | 390057 | Q13-133X | AT-78 | Volume control |
| B | Shaft | | Not Req. | Not Req. | KSS-3 | Attach to R1A per instructions |
| C | Switch | | Not Req. | 76-1 | SW-A | Attach to R1A per instructions |
| R2A | 2 Meg. | ½ | 390046 | Q13-139 | AM-66-Z | Tone control |
| B | Shaft | | Not Req. | Not Req. | KSS-3 | Attach to R2A per instructions |

# PARTS LIST AND DESCRIPTIONS (Continued)

## DIAL LIGHTS

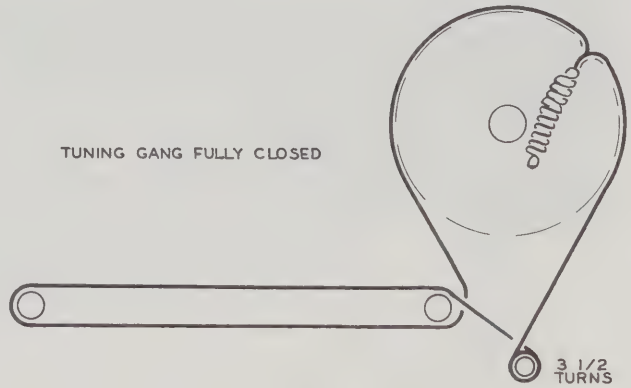
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA: EMERSON PART No. | REPLACEMENT DATA: | NOTES |
|---|---|---|---|---|---|---|---|
| M1 | Bayonet | 115 | | | 807003 | | 115-125V 10W |

## PHONO CARTRIDGE

| ITEM No. | REPLACEMENT DATA: EMERSON PART No. | REPLACEMENT DATA: ASTATIC PART No. | REMARKS |
|---|---|---|---|
| M2 | | L-70 | |

## MISCELLANEOUS

| ITEM No. | PART NAME | EMERSON PART No. | NOTES |
|---|---|---|---|
| M3 | Switch | 510038 | Band-Phono |
| M4 | 2 Gang Var.Cap | 900046 | (31-530MMF, 25-200MMF) |
| | Knob | 460470 | Plain |
| | Knob | 460041 | With Indicator |
| | Dial Crystal | 520071 | |
| | Dial Pointer | 525017 | |




DIAL CORD DRIVE

# PARTS LIST AND DESCRIPTIONS (Continued)

## RESISTORS

| ITEM No. | RATING | | REPLACEMENT DATA | | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| | RESISTANCE | WATTS | EMERSON PART No. | IRC PART No. | |
| R3 | 330Ω | ½ | 350610 | BTS-3300 | FM Ant. Isolation Note 2. |
| R4 | 68Ω | ½ | 340210 | BW-½-68 | FM RF Cathode Note 1 |
| R5 | 680Ω | ½ | 340450 | BTS-680 | FM RF Screen Decoupling Note 1 |
| R6 | 150Ω | ½ | 350290 | | Parasitic Supp. |
| R7 | 22KΩ | ½ | 340810 | BTS-22K | Osc. Grid |
| R8 | 680Ω | ½ | 340450 | BTS-680 | Osc. Plate Decoupling |
| R9 | 2 Meg. | ½ | 351290 | BTS-2.2 Meg | 2nd FM IF Grid |
| R10 | 680Ω | ½ | 340450 | BTS-680 | 2nd FM IF Decoupling |
| R11 | 3.3 Meg | ½ | 351330 | BTS-3.3 Meg | AVC Network |
| R12 | 27KΩ | ½ | 340830 | BTS-27K | Diode Filter |
| R13 | 47KΩ | ½ | 340890 | BTS-47K | Limiter Grid |
| R14 | 6800Ω | ½ | 340690 | BTS-6800 | Voltage Divider |
| R15 | 22KΩ | ½ | 340810 | BTS-22K | Limiter Screen Decoupling |
| R16 | 47KΩ | ½ | 350890 | BTS-47K | Limiter Plate Decoupling |
| R17 | 100KΩ | ½ | 340970 | BTS-100K | Disc. Diode Load |
| R18 | 100KΩ | ½ | 340970 | BTS-100K | Disc. Diode Load |
| R19 | 68KΩ | ½ | 350930 | BTS-68K | De-emphasis |
| R20 | 2 Meg. | ½ | 351290 | BTS-2.2 Meg | AF Grid 5% |
| R21 | 470KΩ | ½ | 351130 | BTS-470K | AF Plate |
| R22 | 22KΩ | ½ | 350810 | BTS-22K | Tone Compensation |
| R23 | 2 Meg. | ½ | 351290 | BTS-2.2 Meg | Tone Compensation |
| R24 | 68KΩ | ½ | 350930 | BTS-68K | Phase Inv. Grid |
| R25 | 1200Ω | ½ | 340510 | BTS-1200 | Phase Inv. Cathode |
| R26 | 22KΩ | ½ | 350810 | BTS-22K | Phase Inv. Plate |
| R27 | 470KΩ | ½ | 351130 | BTS-470K | Output Grid |
| R28 | 470KΩ | ½ | 351130 | BTS-470K | Output Grid |
| R29 | 82Ω | 1 | 370230 | BW-1-82 | Output Cathode |
| R30 | 680Ω | 1 | 370450 | BW-1-680 | Filter |
| R31 | 1000Ω | ½ | 340490 | BW-1-1000 | Filter |
| R32 | 15Ω | 1 | 380050 | | Surge Limiter |

Note 1. Used In Chassis 120083B Only.
Note 2. Used In Chassis 120023B Only.

## TRANSFORMER (OUTPUT)

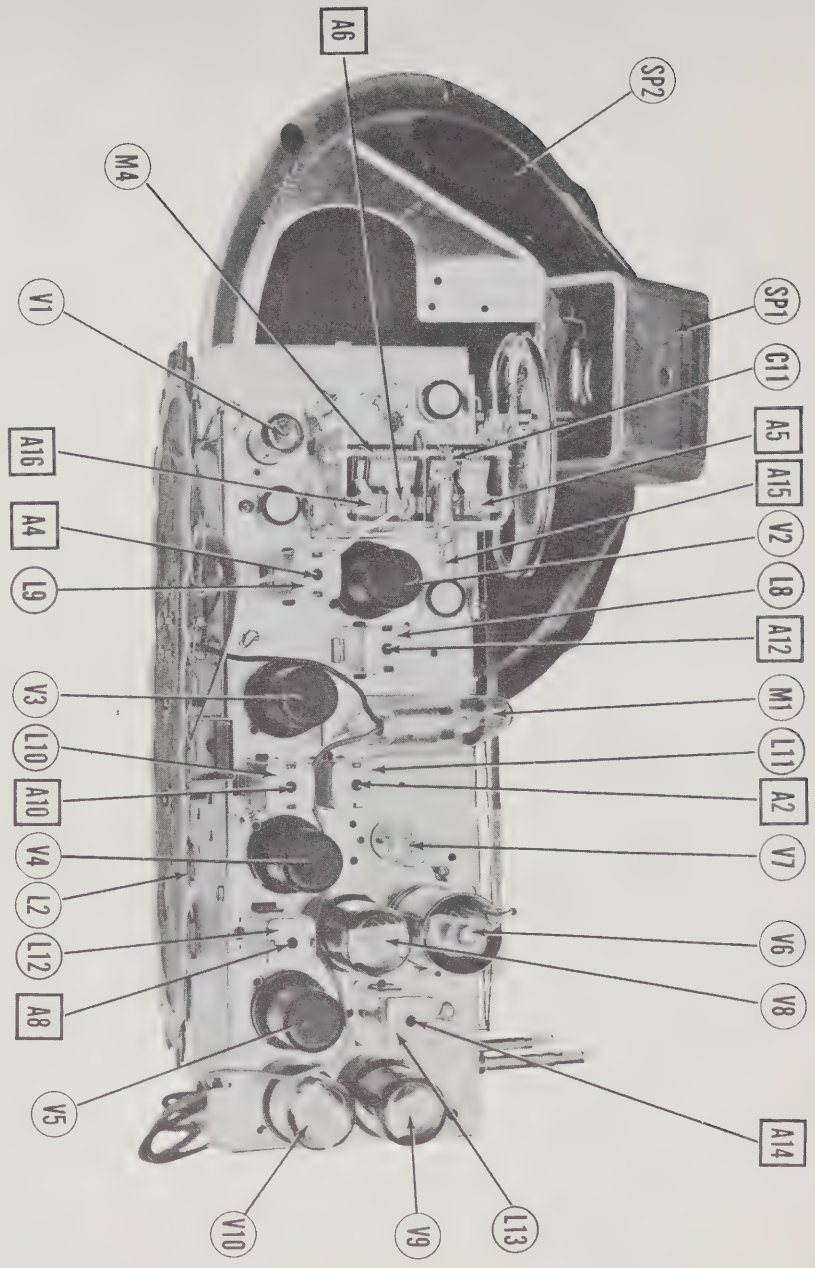
| ITEM No. | RATING | | | | REPLACEMENT DATA | | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| | IMPEDANCE | | DC RES. | | EMERSON PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | |
| | PRI. | SEC. | PRI. | SEC. | | | | | |
| T1 | 4000Ω | 3.9Ω | 188Ω | .5Ω | 734028 | A-3856 | RO-302 | A-2900 | |

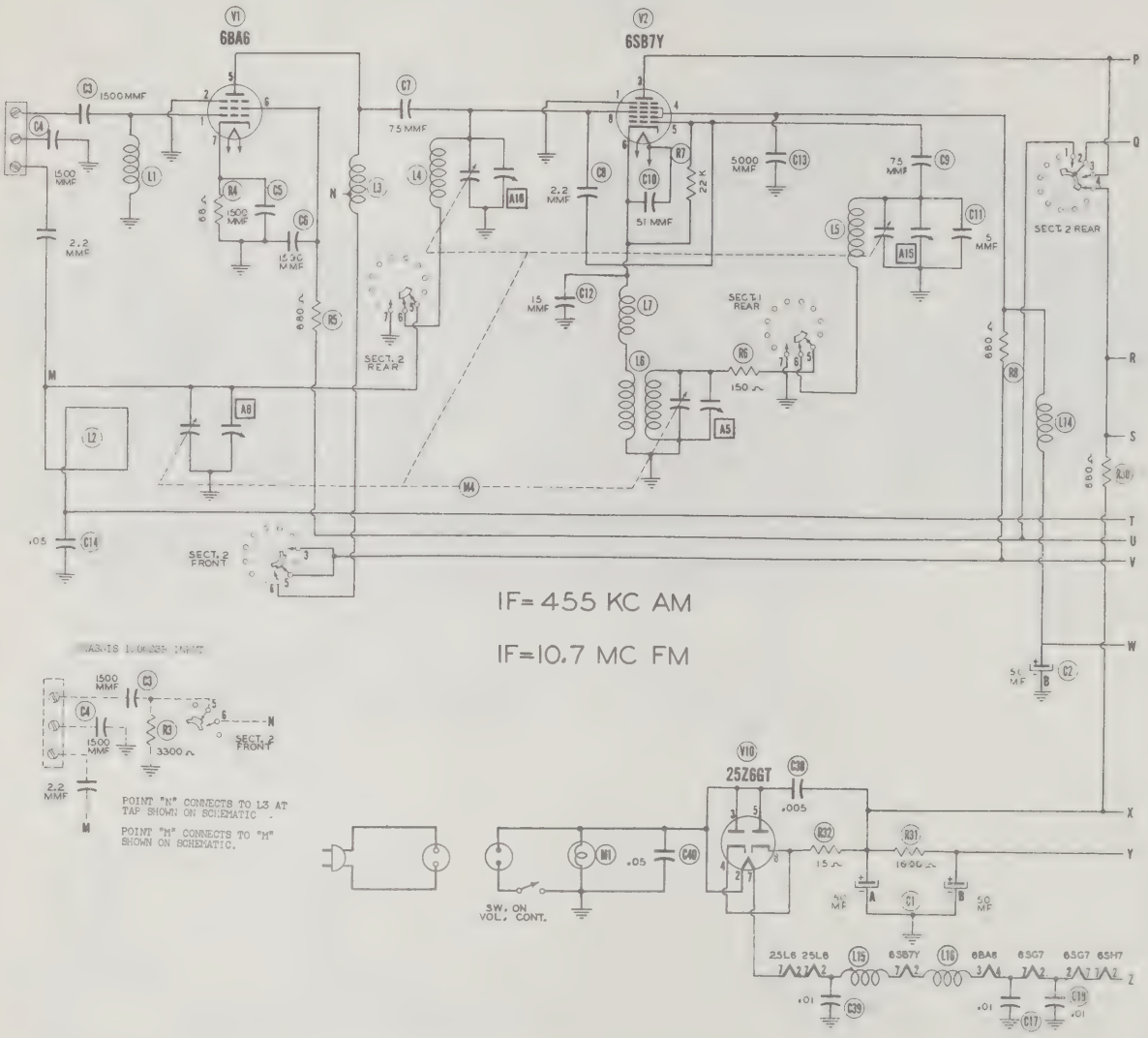
## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA | | | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | V.C. IMP. | EMERSON PART No. | JENSEN PART No. | QUAM PART No. | |
| SP1 | PM | 3.9Ω | 180042 | ST-102# MOD.P12-S | 12A6A | # Replace Output Transformer To Match 6-8Ω Voice Coil. |
| | CONE DIA. | V.C. DIA. | | | | |
| SP2 | 12" | 1 1/4" | | | | |

## R F COILS

| ITEM No. | USE | DC RES. | | REPLACEMENT DATA | | |
|---|---|---|---|---|---|---|
| | | PRI. | SEC. | EMERSON PART No. | MEISSNER PART No. | |
| L1 | FM Ant.Coil | 0Ω | | 710019 | | Chassis 120083B Only. |
| L2 | AM Loop Ant | 1.2Ω | | 700011 | | |
| L3 | RF Choke | .2Ω | | 705002 | | Chassis 120083B Only. |
| L4 | FM RF Coil | 0Ω | | 713008 | | |
| L5 | FM Osc.Coil | 0Ω | | 716013 | | |
| L6 | AM Osc.Coil | 9Ω | | 716015 | 14-1060 | |
| L7 | RF Choke | .2Ω | | 705002 | | |
| L8 | FM 1st IF | .8Ω | .8Ω | 720067 | | Alt. Part #720024 |
| L9 | AM 1st IF | 15Ω | 15Ω | 720075 | 16-6678 | Alt. Part #720031 |
| L10 | FM 2nd IF | .8Ω | .8Ω | 720067 | | Alt. Part #720025 } Replace with |
| L11 | AM 2nd IF | 15Ω | | 720076 | | Alt. Part #720032 } orig. part No. |
| L12 | FM 3rd IF | .8Ω | .8Ω | 720067 | | Alt. Part #720026 |
| L13 | Disc. Trans | .5Ω | 1Ω | 708005 | | Alt. Part #708012 & 708013 |
| L14 | RF Choke | 0Ω | | | | 14 Turns Of Wire On 3/8- Air Core Form |
| L15 | Filament Choke | 1Ω | | 705011 | | |
| L16 | Filament Choke | 1Ω | | 705011 | | |






VOLTAGE READINGS

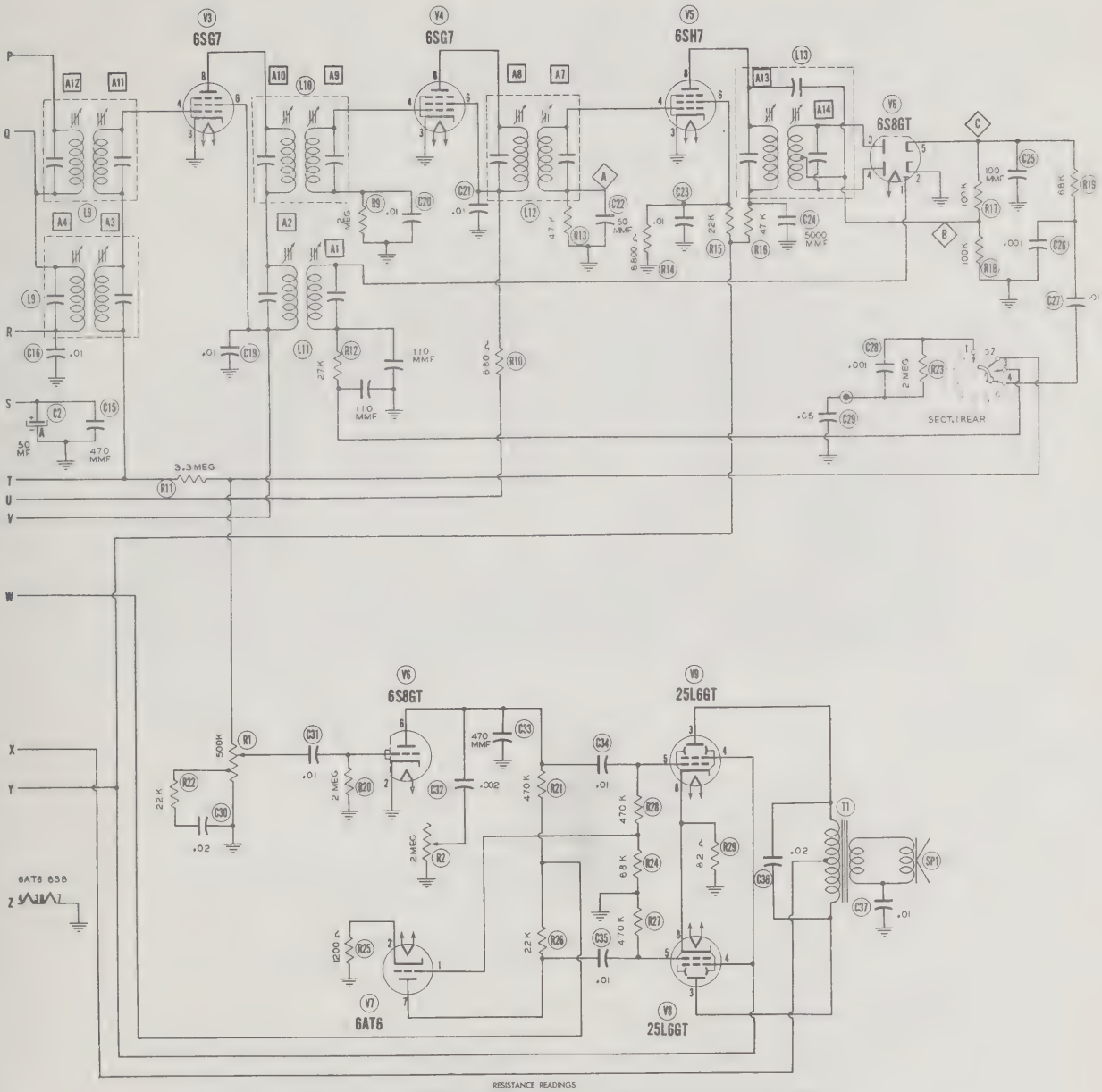
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| +V. | 6BA6 | -.4VDC | 0Ω | -.5VDC | -.8VDC | 6.3VAC | 77VDC | .8VDC | | |
| V2 | 6SB7Y | -.4VDC | 0Ω | -.5VDC | -.8VDC | 6.3VAC | -1.6VDC | 0V | 42VAC | -.7VDC |
| V3 | 6SB7Y | -.4VDC | 0Ω | -.5VDC | -.8VDC | 6.3VAC | -.8VDC | 0V | 46VAC | 0V |
| V4 | 6SD7 | -.4VDC | 0Ω | -.5VDC | -.7VDC | 0Ω | 1.1VDC | 30VAC | 100VDC | |
| +V. | 6SG7 | -.4VDC | 0Ω | -.5VDC | -.8VDC | 0Ω | 1.1VDC | 18VAC | 88VDC | |
| +V. | 6SH7 | -.4VDC | 0Ω | V | -.8VDC | 0Ω | 2.4VDC | 18VAC | 86VDC | |
| V6A | 6S8GT | -.4VDC | 0Ω | -.5VDC | -.8VDC | V | 5.1VDC | 0Ω | 6VAC | |
| V6B | 6S8GT | -.4VDC | 0Ω | -.5VDC | -.8VDC | .1VDC | 4.1VDC | 0Ω | 6VAC | |
| | 6AT6 | -.1VDC | .7VDC | 6VAC | 12VAC | 0V | 0 | 85VDC | | |
| V8 | 25L6GT | 0V | 65VAC | 110VDC | 100VDC | V | 77VDC | 17VAC | 7.5VDC | |
| V9 | 25L6GT | 92VDC | 44VAC | 110VDC | 100VDC | 0V | 115VDC | 65VAC | 7.5VDC | |
| V10 | 25Z6GT | 115VDC | 117VAC | 117VAC | 115VDC | 117VAC | 100VDC | 30VAC | 120VDC | |

§ Taken With Vacuum Tube Voltmeter.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.


© Howard W. Sams & Co., Inc. 1949




RESISTANCE READINGS

| | Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Cap |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ‡ | V1 | 6BA6 | 0Ω | 0Ω | 33Ω | 19Ω | †700Ω | †1.4KΩ | 68Ω | | |
| | V2A | 6SB7Y | 0Ω | 23Ω | †700Ω | †1.4KΩ | 22KΩ | .8Ω | 27Ω | 4 Meg. | |
| ‡ | V2B | 6SB7Y | 0Ω | 23Ω | †700Ω | †1.4KΩ | 22KΩ | .8Ω | 27Ω | 0Ω | |
| | V3 | 6SG7 | 0Ω | 15Ω | 0Ω | 4 Meg. | 0Ω | †700Ω | 19Ω | †700Ω | |
| ‡ | V4 | 6SG7 | 0Ω | 15Ω | 0Ω | 2.2 Meg | 0Ω | †1.4KΩ | 11Ω | †1.4KΩ | |
| ‡ | V5 | 6SH7 | 0Ω | 6Ω | 0Ω | 47KΩ | 0Ω | †20KΩ | 11Ω | †47KΩ | |
| | V6A | 6S8GT | 500KΩ | 0Ω | 100KΩ | 100KΩ | 200KΩ | †470KΩ | 0Ω | 3Ω | 2.2 Meg |
| ‡ | V6B | 6S8GT | Inf. | 0Ω | 100KΩ | 100KΩ | 200KΩ | †470KΩ | 0Ω | 3Ω | 2.2 Meg |
| | V7 | 6AT6 | 68KΩ | 1.2KΩ | 3Ω | 6Ω | Inf. | Inf. | †23KΩ | | |
| | V8 | 25L6GT | Inf. | 40Ω | †100Ω | †1000Ω | 500KΩ | 25KΩ | 50Ω | 82Ω | |
| | V9 | 25L6GT | †1000Ω | 27Ω | †95Ω | †1000Ω | 470KΩ | †15Ω | 40Ω | 82Ω | |
| | V10 | 25Z6GT | 20KΩ | 58Ω | 58Ω | 20KΩ | 58Ω | 20KΩ | 58Ω | 20KΩ | |

† Measured From Pin 8 Of V10.


© Howard W. Sams & Co., Inc. 1949

## ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Use isolation transformer if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

### AM ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1. | .1MFD | High side to pin 8 (Grid) of 6SB7Y. Low side to chassis. | 455KC | BC | Tuning condenser fully open. | Across voice coil | A1,A2, A3,A4 | Adjust for maximum output. Reduce dummy antenna to .001MFD. if isolation trans. is not used. |
| 2. | | Loop | 1600KC | " | " | " | A5 | Form loop of several turns of wire. Radiate signal into receiver loop. Adjust for maximum output. |
| 3. | | Loop | 1400KC | " | Tune for max. output | " | A6 | Adjust for maximum output. |

### FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4. | .01MFD | High side to pin 4 (Grid) of 6SG7 (V4). Low side to chassis. | 10.7MC (Unmod.) | FM | Tuning condenser fully open | DC Probe to Point (A) Common to chassis. | A7,A8 | Adjust for maximum deflection. |
| 5. | .01MFD | High side to pin 4 (Grid) of 6SG7 (V3). Low side to chassis. | " | " | " | " | A9, A10 | Adjust for maximum deflection. |
| 6. | .01MFD | High side to pin 5 (Osc. Grid) of 6SB7Y (V2). Low side to chassis. | " | " | " | " | A11, A12 | " |
| 7. | .01MFD | High side to pin 4 (Grid) of 6SG7 2nd IF (V4) Low side to chassis. | " | " | " | Connect DC Probe to Point (B) Common to chassis. | A13 | " |
| 8. | .01MFD | " | " | " | " | Connect DC Probe to Point (C) Common to chassis. | A14 | Adjust for zero output. A positiive and negative reading will be obtained on either side of the correct setting. |

### FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4. | .01MFD | High side to pin 4 (Grid) of 6SG7 (V3). Low side to chassis. | 10.7MC (450KC Sweep) | FM | Tuning condenser fully open | Vert. input to Point (A) Ground to chassis. | A7,A8, A9,A10 | Adjust for maximum amplitude and symmetry as per Fig 1. |
| 5. | .01MFD | High side to pin 5 (Osc. Grid) of 6SB7Y (V2). Low side to chassis. | " | " | " | " | A11, A12 | " |
| 6. | .01MFD | " | " | " | " | Vert. input to Point (C) Ground to chassis. | A13, A14 | Alternately adjust A13 for maximum amplitude and A14 for maximum straightness of cross-over lines, with cross-over occurring at center of pattern as per Fig 2. Continue with step 9. |

### FM RF ALIGNMENT

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 9. | 150Ω res. in series with each gen. lead. | High side to FM antenna terminal. Low side to chassis. | 108.0MC (Unmod.) | FM | Tuning condenser fully open | Connect DC Probe to Point (A) Common to chassis. | A15 | Adjust for maximum output. |
| 10. | " | " | 106.0MC | " | Tune for max. output | " | A16 | " |

FIG. 1

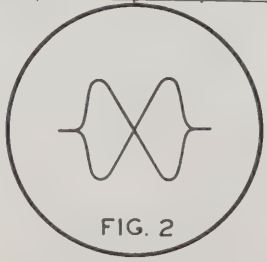


FIG. 2

RCA
MODEL RP168

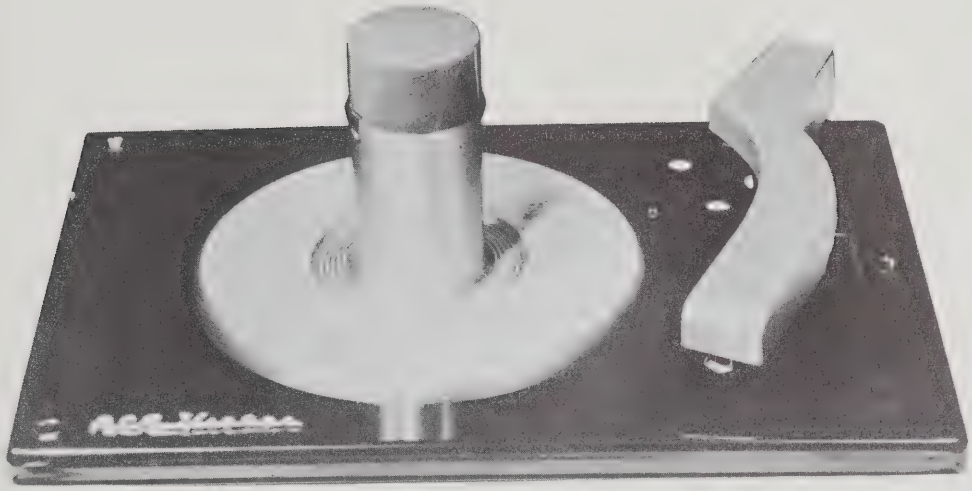


FIGURE 1

## GENERAL INFORMATION

The RCA Victor Model RP168, 45 RPM changer is designed to play and change automatically the new small-diameter (6⅞″), fine-groove phonograph records. It will handle up to eight records, in sequence, at a loading. This changer is of the new "Spindle-Loading," rapid-changing type. It is designed to operate from a supply of 110-volt, 60-cycle AC. The last record will be repeated until the changer is turned off.

MANUFACTURED BY: RADIO CORPORATION OF AMERICA
RCA VICTOR DIVISION • CAMDEN, NEW JERSEY

RCA
MODEL RP168



*This material compiled and published by*
HOWARD W. SAMS & CO., INC., INDIANAPOLIS 1, INDIANA
COPYRIGHT 1949 • ALL RIGHTS RESERVED

DATE 10/49 SET #72 FOLDER #10

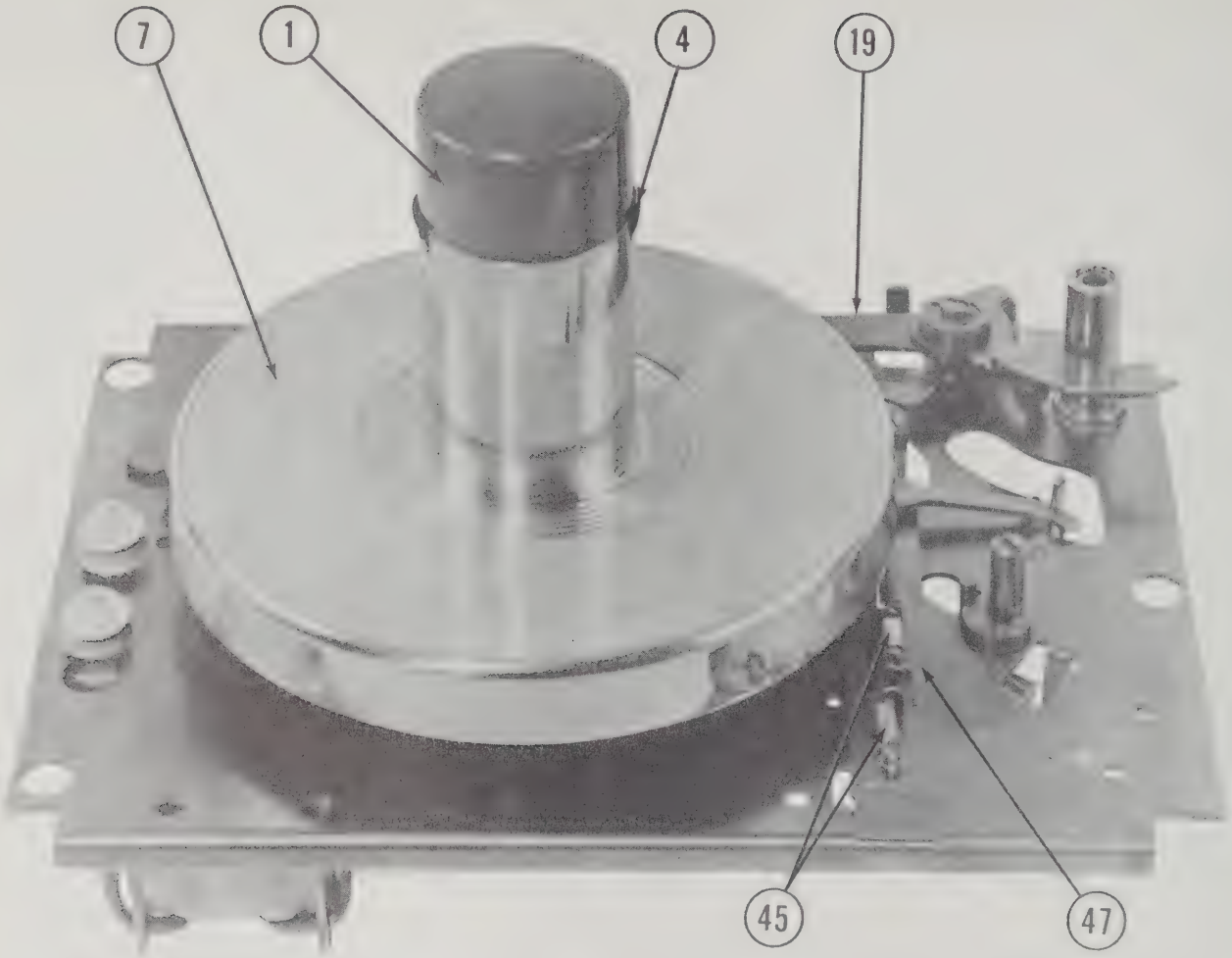



FIGURE 2

## AUTOMATIC OPERATION

To operate this changer, be sure the mechanism is out of cycle and the pickup arm is on the arm rest before loading.

2. Remove the needle guard.

3. Place a series of the new small-diameter (6⅞″), fine-groove records on the spindle, allowing them to come to a rest on the record supports (4A)—part of assembly (4).

4. Apply power to the drive motor (36).

5. Pull the reject control knob (62) forward and let go. The mechanism will automatically play, in sequence, one side of each record stacked on the separator shelves. The last record will be repeated until the changer is turned off.

6. To reject a record being played, pull the reject knob (62) away from tone arm reset and release.

7. To repeat a record being played, remove all remaining records from the separator shelf (4A). The remaining record will continue to repeat until additional records are replaced on the spindle, or the changer is turned off.

8. At conclusion of playing and as the last record is being repeated, lift the tone arm from the record and place on arm rest; then turn the changer off.

### *Caution*

1. Do not handle the tone arm while the mechanism is in cycle.

2. Do not use force to release a jam.

3. Do not try to remove the records on the turntable if the turntable is stopped in cycle.

4. Do not try to operate the mechanism if the separator knives (4) protrude from the center post when the mechanism is out of cycle.

Apply power to the turntable; as the turntable revolves, press gently against the protruding discs (4) until they disappear inside the spindle. Do not do this during a change cycle.

## CHANGE CYCLE

The change cycle is started by either pulling the reject control knob (62) away from the tone arm rest, which actuates the reject slide (47) moving the trip pawl (22) into tripping position, or by the action of the trip lever assembly (54), pushing the trip pawl (22) into tripping position, as the tone

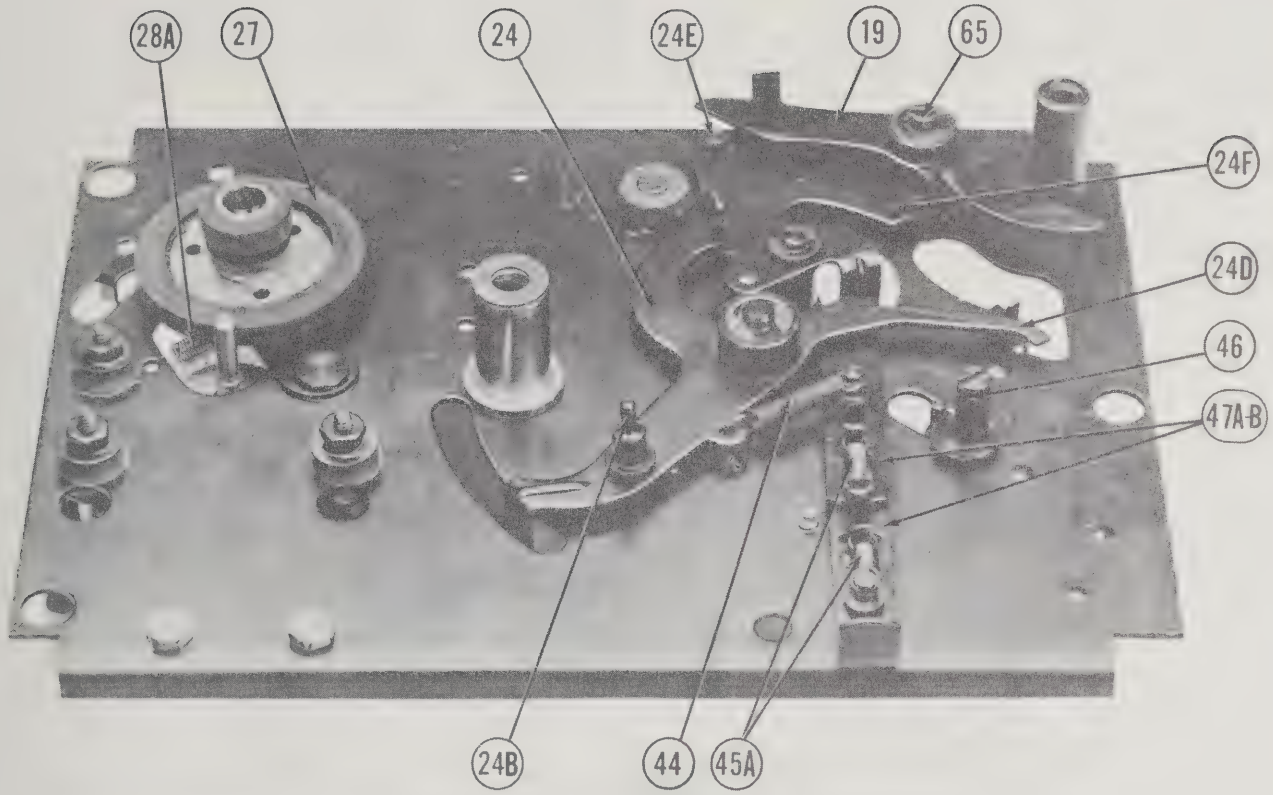



FIGURE 3

arm moves into the tripping groove of the record.

As the turntable rotates, a small projection (7A) extending from the underside of the turntable contacts the end of the trip pawl (22). Upon contact, the stud on the trip pawl (22) is forced against the main lever assembly (24) causing the follower stud (24B), Figure 3, of the main lever (24) to be forced through the slot and into the cycling cam groove (7B), Figure 5, thus starting the change cycle.

*The change cycle operation is very rapid, due to the fact that it takes only one revolution of the turntable to complete a cycle. Therefore, as the follower stud (24B) moves in the cam track (7B), the following operations take place:*

1. Finger (24D) of the main lever (24) moves away from the pawl (50A).

2. The end of the main lever (24C), extending below the motor board, moves away allowing the muting switch (64) to close.

3. At the same time, stud (24E) pushes against the tone arm lift lever (19), which, in turn, raises the tone arm.

4. The end (24F) of the main lever (24) contacts the stud (54B) on the trip lever (54), starting the tone arm on its outward movement and end (24G) resets the trip pawl (22). The stud (54B) then moves against the lever assembly (50); therefore, as the tone arm reaches its outermost position, the tone arm is locked in position by the latch (50A), clamping the stud (54B) on the tone arm return lever (54).

5. While the tone arm is moving outward, the end (24C) moves in to block the rotation of the star wheel (41) and the shaft and gear assembly (6). Since the turntable continues to rotate while the star wheel and shaft remain stationary, the two small gears of the assembly (4) rotate around the gear of the gear and shaft assembly (6). This action is necessary to cause the shelves to recede, due to the eccentricity of the two small gears (4B), and the shelves to pivot out to select the lower record of the stack and to support the remaining records while the bottom record drops to the turntable.

At this point of rotation of the turntable, the main lever (24) is reversed in direction.

1. The end (24F) retains contact with the stud (54B) on the trip lever to stabilize the inward movement of the tone arm which is being pushed in by the return lever (50). This inward movement of the tone arm is stopped by stud (50B) of the return lever (50) coming in contact with the eccentric adjusting stud (46), thus positioning the tone arm for set down.

2. The stud (24E) moves away from the lever (19) lowering the tone arm to the record.

3. The stud (24B) of the main lever is now pulled through the slot in the cam by the force of the spring (44).

4. As the main lever is being pulled out of the cam track, end (77C) is moved away from the star wheel (43), end (77D) moves against the pawl (60A), thus unlatching the tone arm, and end (77C) then opens the muting switch (49). This completes the change cycle.

# ADJUSTMENTS

### *Tone Arm Set Down*

Normally, the set-down position is adjusted by turning the eccentric adjusting stud (46), Figures 2 and 3, made accessible through the hole (AA) in the motorboard (exploded view). If the pickup lands on the music grooves of the record, turn the stud slightly clockwise; turn counter-clockwise if the arm lands too near the edge of the record. However, if for any reason the trip lever (54) is loose on the shaft (12), the set-down position must be adjusted as follows:

1. Place a record on the turntable.

2. Set the adjusting stud (46) in a neutral position.

3. Move the reject knob (62) forward and release.

4. Turn the turntable clockwise, by hand, until the tone arm starts to lower. At this point, the lever (54) is held by the pawl (50A) of the lever assembly. Be sure screw (57) is loose enough to slide lever (54).

5. Push up on the lever (54) and down on the tone arm (9), leaving approximately .010″ vertical play.

6. While holding the lever (54) in position, move the tone arm over the starting groove of the record.

7. Tighten the clamp screw (57).

8. Turn the power on, push the reject knob forward, and observe the landing point.

9. A finer adjustment may be made by turning the adjusting stud (46) as described in the first part of the set-down adjustment.

### *Tone Arm Height*

The correct height of the tone arm (9), while out of cycle, is approximately 1/16″ between the needle and the motorboard (13). To obtain this adjustment, bend the lug (12A) *exploded view* in the direction needed for proper height.

The maximum height of the tone arm, during the change cycle, is approximately ¾″ between the needle and the top of the turntable. This adjustment may be made by turning the adjusting stud (65). Turning the stud clockwise will raise the arm, and counterclockwise will lower the arm. This height-adjusting stud (65) is made accessible through the hole (BB) in the motorboard (exploded view).

### *Timing of Separator Knives*

1. Make certain the two gears (4B) are meshed with the gear of the gear and shaft assembly (6).

2. Loosen the two set screws (42) sufficiently to permit the star wheel (41) to rotate without disturbing the shaft (6).

3. Position the separator knives as shown in Figure (6).

4. Move the reject knob (62) forward and release. Rotate the turntable slowly, by hand, until the end (24C) of the main lever moves in far enough so when the star wheel (41) is rotated it contacts the end (24C).

5. Tighten the set screws and check the adjustment by running the changer through several change cycles.

The separator knives must rotate 360° and return to the starting position, as indicated in Figure (6).

### *Automatic Tripping Adjustment*

The changer should trip when the needle leaves the last playing groove. The adjustment is obtained by bending the long end of the trip pawl (22).

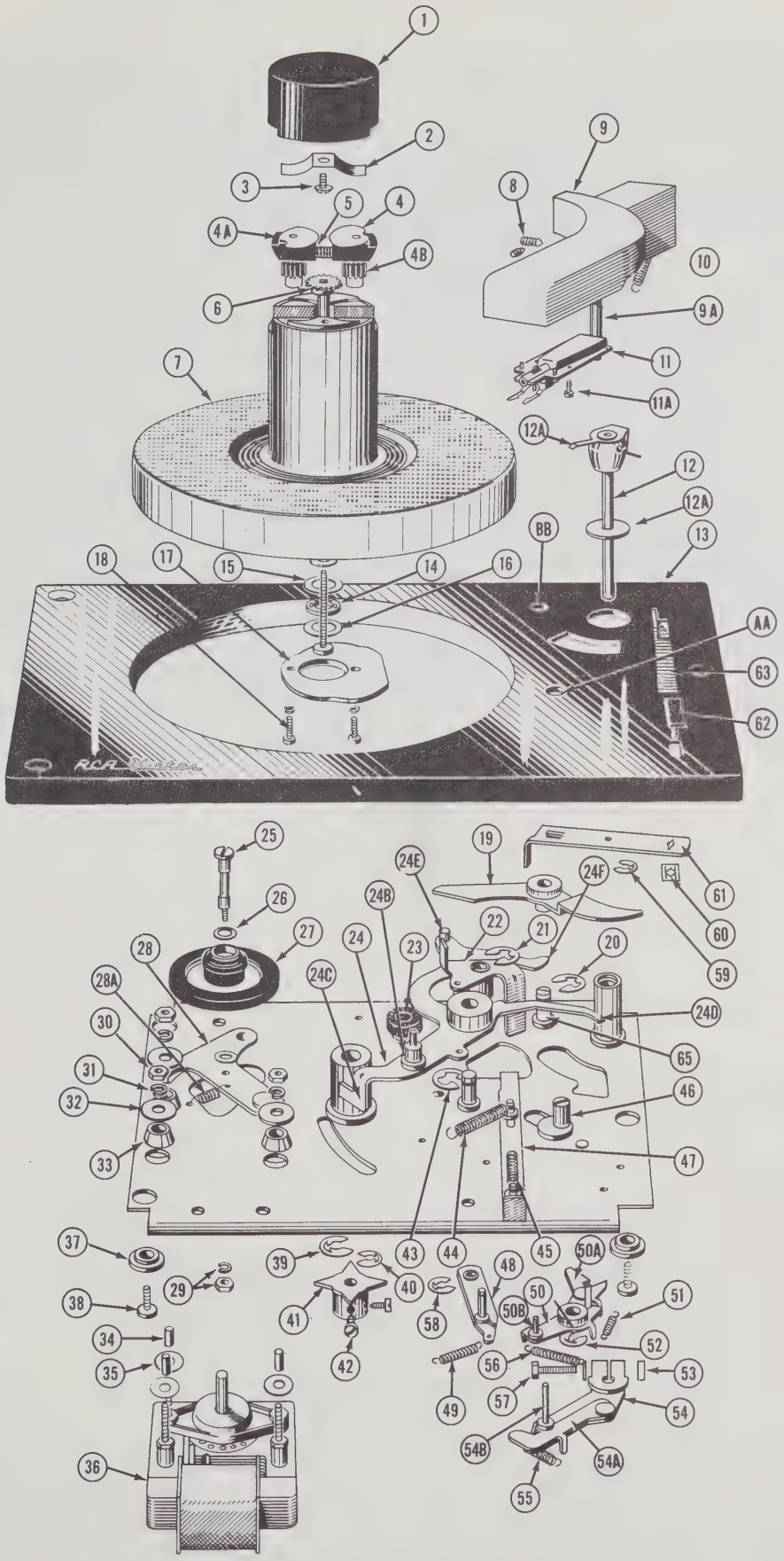
# TROUBLES

### *Fails to Trip*

1. Stud (7A) of the turntable, Figure 5, broken off.

2. The dog (22A), Figure 3, bent, thereby not coming in contact with the stud (7A).

3. The long end on the trip pawl (22) bent away




A PHOTOFACT "EXPLODED" VIEW

© Howard W. Sams & Co., Inc. 1949

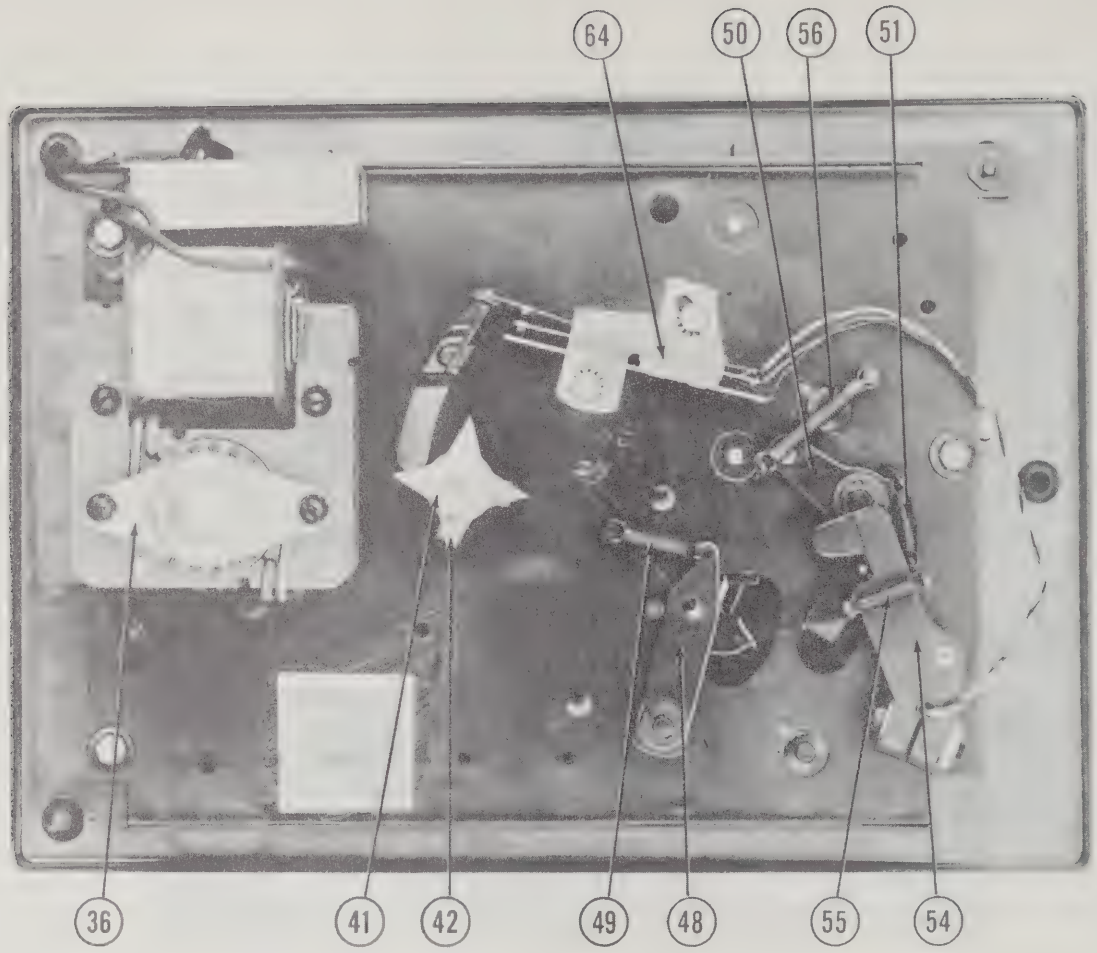



FIGURE 4

from the point of contact of the trip lever (54) for automatic tripping and the reject slide (47) for manual tripping.

4. Trip lever (54) loose on the tone arm shaft (12).
   (a) For proper adjustment of this trouble, see "Tone Arm Set Down" under "ADJUSTMENTS."

5. Spring (55) loose.

6. Spring (49) loose.

### *Failure to Cycle*

1. The stud on the trip pawl (22) that actuates the main lever—bent or broken.

2. Follower stud (24B) broken.

### *Stalling During the Change Cycle*

1. Turntable cam (17) off center, not leaving enough space for the follower stud (24B) to pass in the groove.

2. Spring (56) loose. This condition may allow the stud (54B) to pass behind the pawl (50A).

3. Oil and grease on rubber idler wheel and turntable rim; clean with carbon tetrachloride.

### *Wow (Speed Variation)*

1. Idler wheel (26) binding on tight bearing stud (25).

2. Grease on idler wheel and turntable rim.

3. Idler wheel lever (28) binding.

4. Idler wheel lever spring (28A) loose.

5. Defective motor.

6. Turntable binding.

### *Repeats Grooves*

1. Bind in tone arm pivot shaft, no vertical play. See "Tone Arm Set Down"—Items (4 and 5).

2. Lug (12A) bent too high not allowing tone arm to rest on record. See "Tone Arm Height" under "ADJUSTMENTS."

3. Spring (10) tension too great.

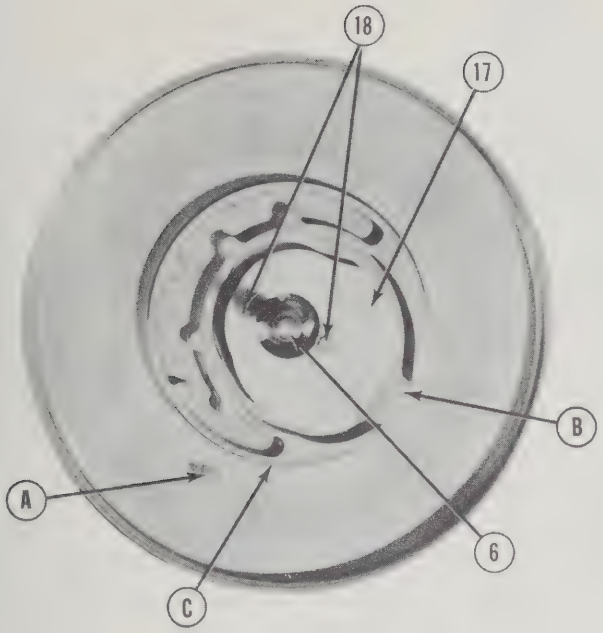



FIGURE 5

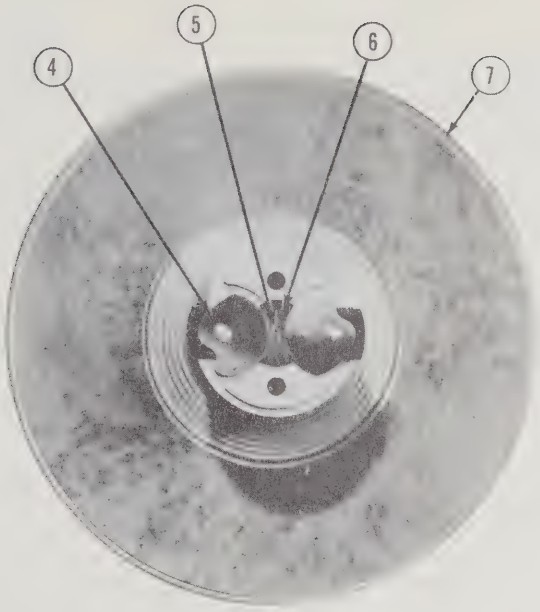



FIGURE 6

4. Pivot stud (8) too tight causing binding.

### *Continuous Tripping*

1. Spring (44) missing.
2. Trip slide (47) binding.

### *Improper Landing of Tone Arm*

1. Lever (50) binding in pivot.
2. Spring (51) loose.
3. Main lever end (24D) bent.
4. Stud (54B) loose.
5. Eccentric stud (46) loose.
6. Spring (56) missing.

### *Record Fails to Drop to Turntable*

1. Star wheel (41) loose on shaft (6). See "Timing of Separator Knives" under "ADJUSTMENTS."

### *Records Drop On or Hit Tone Arm*

1. Star wheel (41) improperly timed. See "Timing of Separator Knives" under "ADJUSTMENTS."

### *No Sound During Playing*

1. Defective Cartridge (11).
2. Defective wiring.

2. Check position of muting switch (64) with changer out of cycle.

4. Defective amplifier.

### *Changer Trips Before End of Cycle*

1. The long end of the trip pawl (22) bent. See "Automatic Tripping Adjustment."

### *Failure to Trip Manually*

1. The long end of the trip pawl (22) bent.
2. Turned up end of slide (47) bent in.

## LUBRICATION

Additional lubrication should not be required for a long period of time; however, in cases of unusual use, or high operating temperature, the changer should be lubricated as follows:

1. Light machine oil (SAE No. 10) should be used to oil the bearings of the drive motor.

2. Use a good light grease on all bearing surfaces except the motor bearings; on all other sliding surfaces.

### *Caution*

Do not oil or grease the record separator knives. Avoid over lubrication. Do not allow grease or oil to come in contact with rubber idler wheel (27), the drive motor shaft, or the turntable rim. All grease, oil, or any other foreign material should be cleaned from these parts with carbon tetrachloride or naphtha.

# PARTS LIST

| Ref. No. | Part No. | DESCRIPTION |
|---|---|---|
| 1 | 74090 | Spindle cap |
| 2 | 74091 | Spindle spring |
| 3 | | Screw—No. 6-32 R.H.M.S. for item 2 |
| 4 | 74096 | Separator—separator knife, shelf and gear assembly |
| 4A | | Record support (part of item 4) |
| 5 | 74095 | Spring—separator shelf return spring (.180" O.D. x 1 1/16"—10 turns) |
| 6 | 74092 | Star wheel shaft and gear assembly |
| 7 | 74042 | Turntable assembly |
| 8 | 74062 | Cone-Pointed Pivot Screw—No. 8-32 x 13/32" |
| 8A | 74410 | Set screw—No. 4-40 x 3/16" fillister head |
| 9 | 74041 | Pickup arm shell and stud less crystal, cable and rear pivot arm |
| 9A | | Pin for vertical movement of arm (part of item 9) |
| 10 | 74060 | Counterbalance spring (.171" O.D. x .695"—43 turns |
| 11 | 74067 | Pickup cartridge—including sapphire and guard |
| 11A | 74065 | Cartridge mounting screw—No. 2-56 x 3/16" fillister head |
| 12 | 74059 | Pickup arm pivot shaft |
| 12A | 74256 | Vellutex washer—O.D. .508"—I.D. .195"—thickness .032" |
| 13 | 74184 | Motorboard complete with welded brackets and stud—less rest and operating parts |
| 14 | 72349 | Thrust bearing |
| 15 | 74080 | Thrust washer |
| 16 | 74080 | Thrust washer |
| 17 | 74231 | Follower cam |
| 18 | | Cam plate mounting screw |
| 19 | 74073 | Pickup arm lift lever |
| 20 | 35969 | "C" washer for tone arm lift lever |
| 21 | 33726 | "C" washer for trip pawl |
| 22 | 74072 | Trip pawl |
| 23 | 74082 | Felt bumper washer ½" O.D. x ¼" I.D. x 3/16" thick |
| 24 | 74076 | Director lever |
| 25 | 74079 | Idler wheel bearing screw |
| 26 | 74078 | Dampening washer for idler wheel |
| 27 | 74077 | Idler wheel |
| 28 | | Idler wheel lever |
| 28A | 74089 | Idler wheel spring .195" O.D. x .593"—14 turns |
| 29 | | Lock washer for item 25 No. 4<br>Hex nut for item 25 No. 4-40 |
| 30 | 74132 | Hardware for motor mounting consisting of items (30) 3 hex nuts; (31) 3 lockwashers; (32) and (35) 6 flat washers; (34) 3 spacers |
| 31 | | Lock washer (see item 30) |
| 32 | | Flat washer (see item 30) |
| 33 | 74087 | Motor mounting grommet |
| 34 | | Motor mounting spacer (see item 30) |
| 35 | | Flat washer (see item 30) |
| 36 | 74071 | Motor 105/125 volts, 60 cycles |
| 37 | | Shoulder washer sub-plate |
| 38 | | Sub-plate mounting screw |
| 39 | 72688 | "C" washer—turntable assembly |
| 40 | 33726 | "C" washer for star wheel shaft |
| 41 | 74081 | Star wheel |
| 42 | 74083 | Cone-pointed set screw 6-32 x 5/16 |
| 43 | 35969 | "C" washer for director lever |
| 44 | 74086 | Reject lever spring (.203" O.D. x 13/16"—34—¾ turns) |
| 45 | 74086 | Spring for reject lever (.203" O.D. x 13/16"—34¾ turns) (early production, exploded view) |
| 45A | | Springs for reject lever—late production (see figure 2) |
| 46 | | Pickup arm landing adjustment screw |
| 47 | | Start-reject slide—early production (see exploded view) |
| 47A-B | | Start-reject slide—late production (see figure 2) |
| 48 | 74245 | Trip pawl mounting arm |
| 49 | 74100 | Trip pawl takeup spring (.195" O.D. x ⅝"—20½ turns) |
| 50 | 74074 | Pickup arm return lever (includes spring 51) |
| 51 | 74075 | Return lever latch spring (.180" O.D. x .535"—21½ turns) |
| 52 | 35969 | "C" washer—tone arm return lever |
| 53 | | Trip lever clamp nut |
| 54 | 74099 | Trip lever (includes spring 55) |
| 54A | | Trip lever pawl |
| 55 | 74060 | Trip lever spring (.171" O.D. x .695"—43 turns) |
| 56 | 74085 | Return lever actuating spring (.195" O.D. x 29/32"—37½ turns) |
| 57 | | Trip lever clamp screw |
| 58 | 33726 | "C" washer—trip lever pawl |
| 59 | 33726 | "C" washer for mounting reject lever actuating lever |
| 60 | 74212 | Speed nut for reject control knob |
| 61 | 74211 | Reject lever actuating lever |
| 62 | 74210 | Reject control knob |
| 63 | 74185 | Pickup arm rest |
| 64 | | Muting switch |
| 65 | | Pickup height adjusting screw |

# SILVERTONE
# MODELS 9005, 9006 (Ch. 132.858)

SILVERTONE
MODELS 9005, 9006 (Ch. 132.858)

SILVERTONE
MODELS 9005, 9006 (Ch. 132.858)

SILVERTONE MODEL 9006

| | |
|---|---|
| TRADE NAME | Silvertone, Models 9005, 9006 (Ch. 132.858) |
| SUPPLIER | Sears, Roebuck & Co., 925 S. Homan St., Chicago, Illinois. |
| TYPE SET | AC-DC Operated Superheterodyne Receiver with Loop Antenna. |
| TUBES (FIVE) | Types 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7GT DET-AVC-AF, 50L6GT Power Output, 35Z5GT Rectifier. |
| POWER SUPPLY | 105-125 Volts AC-DC RATING .27 Amp. @ 117 Volts AC |
| TUNING RANGE—BROADCAST | 540-1600KC |

**ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT**

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Use isolation transformer if available. If not connect a .1 MFD. cap. in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|
| 1. | .05MFD | High side to Pin 8 (Grid) of 12SA7GT (V1). Low side to B-. | 455KC | Tuning gang fully open. | Across voice coil. | A1, A2 A3, A4 | Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001 MFD to reduce hum modulation. |
| 2. | | Loop | 1400KC | 1400KC | " | A5, A6 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |
| 3. | | Loop | 600KC | Tune for max. signal. | " | | Bend tuning capacitor plates, if necessary, so receiver calibrates at 600KC. |

HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

# PARTS LIST AND DESCRIPTIONS

SILVERTONE
MODEL 9006

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA: SILVERTONE PART No. | REPLACEMENT DATA: STANDARD REPLACEMENT | RMA BASE TYPE | INSTALLATION NOTES |
|---|---|---|---|---|---|
| V1 | Converter | 12SA7GT | 12SA7GT | 8AD | |
| V2 | IF Amp. | 12SK7GT | 12SK7GT | 8N | |
| V3 | DET-AVC-AF | 12SQ7GT | 12SQ7GT | 8Q | |
| V4 | Power Output | 50L6GT | 50L6GT | 7AC | |
| V5 | Rectifier | 35Z5GT | 35Z5GT | 6AD | |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING: CAP. | RATING: VOLT | REPLACEMENT DATA: SILVERTONE PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C1A | 50 | 150 | N22232 | PRSA150/50 | EDL5315 | | TA-530 | Filter-Red |
| B | 30 | 150 | | -30 | | | | Filter-Blue |
| C2 | .005 | 400 | | P688-005 | GT6D5 | GP2M-005 | TM-25 | Ext. Ant. Isolation |
| C3 | 50 | 500 | | 1468-00005 | 5W5Q5 | GP1K-50 | 1FM-45 | Osc. Grid Cap |
| C4 | .05 | 200 | | P288-05 | GT2S5 | | TM-15 | AVC Filter |
| C5 | 250 | 500 | | 1468-00025 | 5W5T25 | GP2K-250 | 1FM-325 | Diode RF Filter |
| C6 | .002 | 600 | | P688-002 | GT6D5 | GP2M-002 | 1FM-35 | Audio Coupling |
| C7 | 500 | 500 | | 1468-0005 | 5W5T5 | GP2K-500 | TM-25 | AF Plate Bypass |
| C8 | .005 | 400 | | P688-005 | GT6D5 | GP2M-005 | TM-12 | Audio Coupling |
| C9 | .02 | 400 | | P488-02 | GT4S2 | | TM-1 | Output Plate Bypass |
| C10 | .1 | 400 | | P488-1 | GT4P1 | | 72P52 | Line Isolation |
| C11 | .05 | 400 | | P488-05 | GT4S5 | | TM-15 | Line Filter |

## CONTROLS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: SILVERTONE PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| R1A | 1 Meg. | ½ | N22192 | Q13-137 | M-63-Z | Volume control |
| B | Switch | | | 76-1 | SW-A | Attach to R1A per instructions |

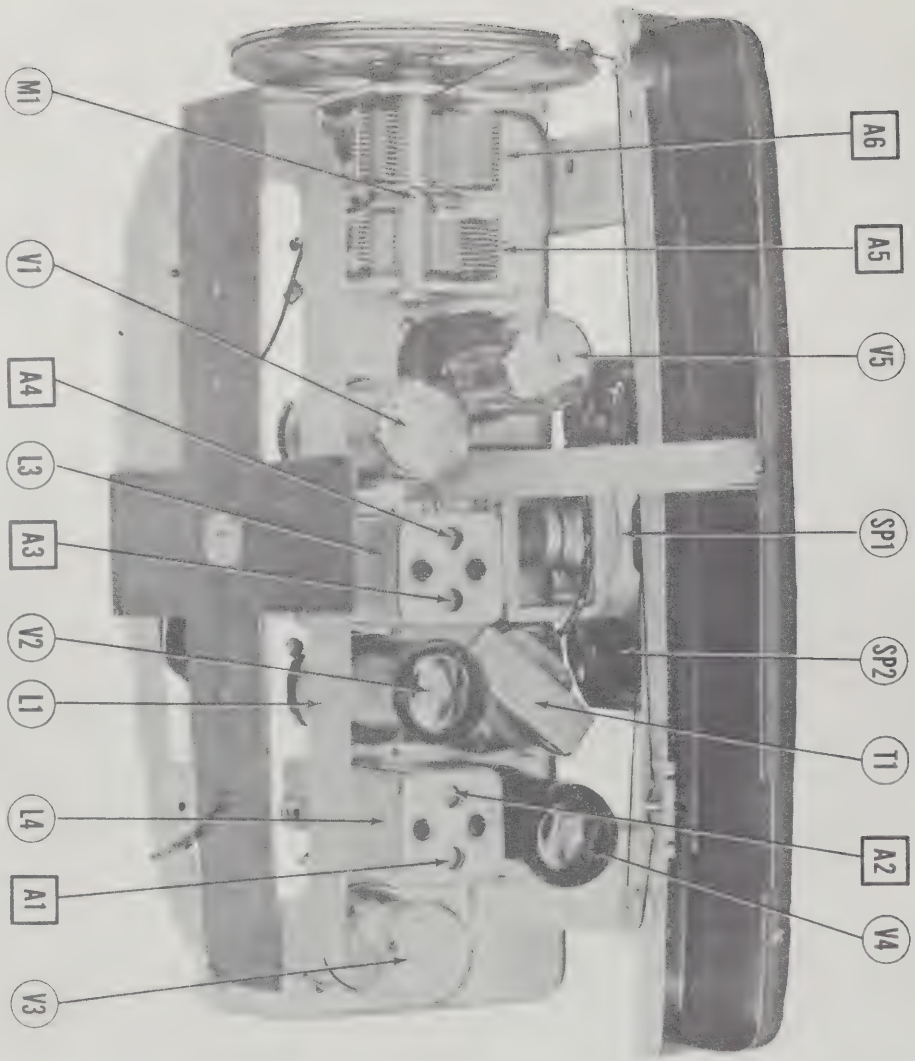
## RESISTORS

| ITEM No. | RATING: RESISTANCE | RATING: WATTS | REPLACEMENT DATA: SILVERTONE PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R2 | 10 Meg. | ½ | | BTS-10 Meg | AVC Network |
| R3 | 22KΩ | ½ | | BTS-22K | Osc. Grid |
| R4 | 2.2 Meg | ½ | | BTS-2.2 Meg | AVC Network |
| R5 | 15 Meg | ½ | | BTS-15 Meg | AF Grid |
| R6 | 470KΩ | ½ | | BTS-470K | AF Plate |
| R7 | 470KΩ | ½ | | BTS-470K | Output Grid |
| R8 | 150Ω | ½ | | BW-½-150 | Output Cathode |
| R9 | 1200Ω | 1 | | BW-1-1200 | Filter |
| R10 | 22Ω | ½ | | | Surge Limiter |
| R11 | 330KΩ | ½ | | BTS-330K | Isolation |

## TRANSFORMER (OUTPUT)

| ITEM No. | RATING: IMPEDANCE PRI. | RATING: IMPEDANCE SEC. | RATING: DC RES. PRI. | RATING: DC RES. SEC. | REPLACEMENT DATA: SILVERTONE PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 2400Ω | 3.7Ω | 107Ω TAP @ 6Ω | 3.1Ω | N22257-1 | A-3280 | RD-3 | A-3031 | |

## CHASSIS—TOP VIEW



# PARTS LIST AND DESCRIPTIONS (Continued)

## SPEAKER

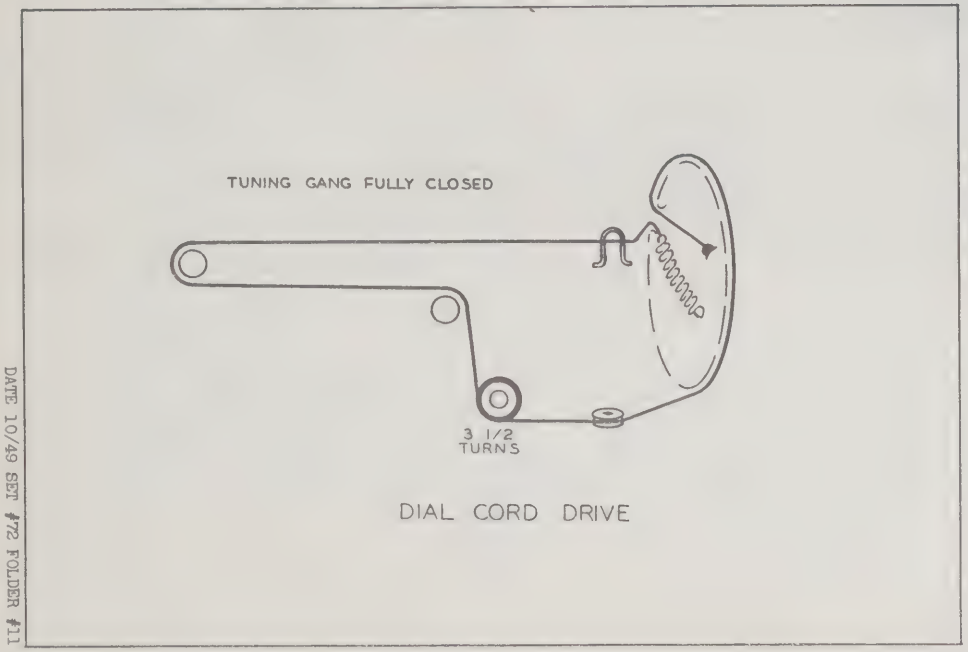
| ITEM No. | RATINGS | | REPLACEMENT DATA SILVERTONE PART No. | JENSEN PART No. | QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | V.C. IMP. | | ST-113† | | |
| SP1 | PM | 3.7Ω | N22191 | MOD.P4-X | 4A07† | † Cut Out Chassis For Spkr. Magnet Frame. Fabricate Mtg. Bracket. |
| | CONE DIA. | V.C. DIA. | | | | |
| SP2 | 3 7/8" | 9/16" | | | | |

## R F COILS

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA SILVERTONE PART No. | REPLACEMENT DATA MEISSNER PART No. |
|---|---|---|---|---|---|
| L1 | Loop Ant. | .6Ω | 1.2Ω | N21245-1 | |
| L2 | Osc.Coil | 1Ω | 7.5Ω | | |
| L3 | Input IF | 24Ω | 24Ω | N22189-1 | 16-6658 |
| L4 | Output IF | 24Ω | 24Ω | N22190-1 | 16-6660 |

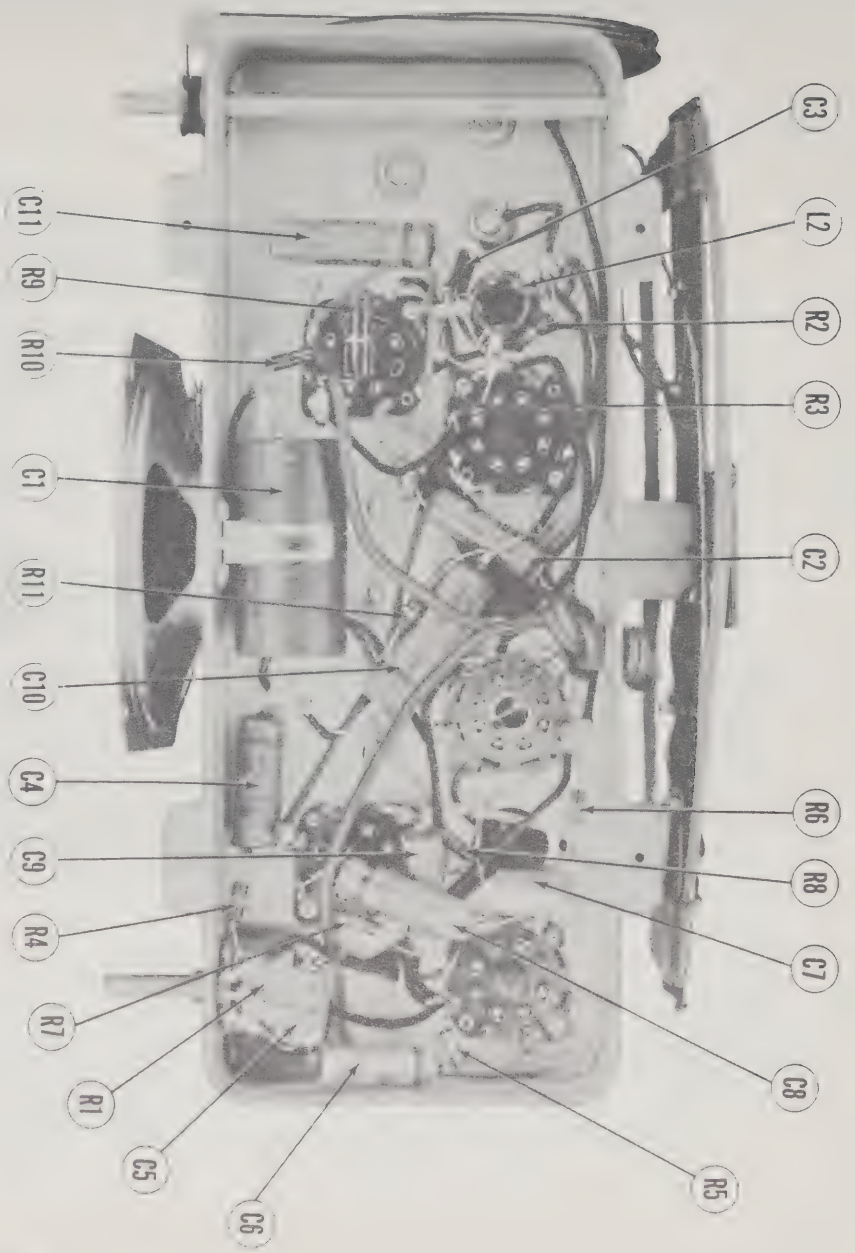
## MISCELLANEOUS

| ITEM No. | PART NAME | SILVERTONE PART No. | NOTES |
|---|---|---|---|
| M1 | 2 Gang Var. Cap | N21252 | (20-410MMF, 34-200MMF) |
| | Cabinet | N22135-1 | Model 9005 |
| | Cabinet | N22135-2 | Model 9006 |
| | Knob | N21204-4 | Brown |
| | Knob | N21204-3 | Ivory |
| | Dial Scale | N22136 | |
| | Dial Pointer | N22185-1 | |




DIAL CORD DRIVE

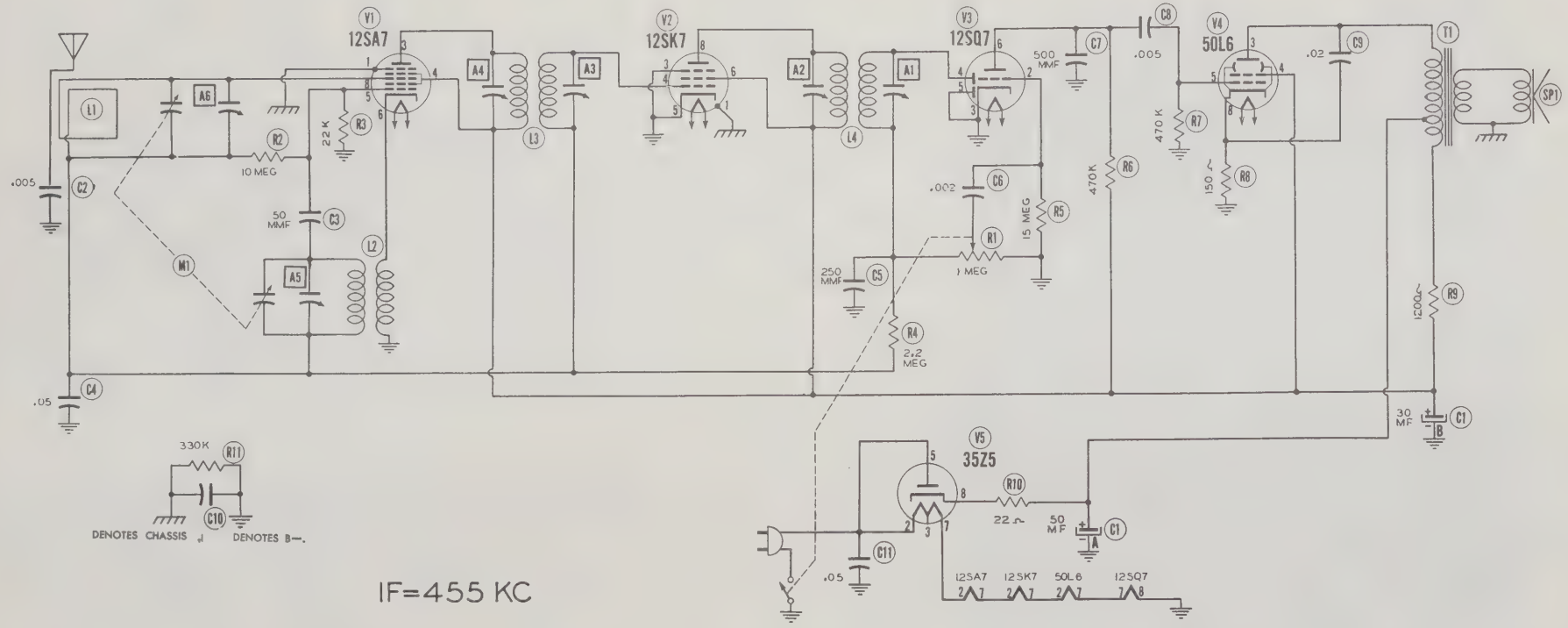
# CHASSIS—BOTTOM VIEW




DATE 10/49 SET #72 FOLDER #11

SILVERTONE MODEL 9006

SILVERTONE MODEL 9006




IF=455 KC

VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| V 1 | 12SA7GT | 0V | 82VAC | 100VDC | 100VDC | §-6.1 VDC | 0V | 70VAC | -.3VDC |
| V 2 | 12SK7GT | 0V | 70VAC | 0V | -.3VDC | 0V | 100VDC | 60VAC | 100VDC |
| V 3 | 12SQ7GT | 0V | -.6VDC | 0V | -.6VDC | 0V | 55VDC | 12VAC | 0V |
| V 4 | 50L6GT | 0V | 60VAC | 117VDC | 100VDC | 0V | -.3VDC | 12VAC | 5.9VDC |
| V 5 | 35Z5GT | 0V | 117VAC | 109VAC | 122VDC | 117VAC | 0V | 82VAC | 123VDC |

§ Taken With Vacuum Tube Voltmeter.

RESISTANCE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 |
|---|---|---|---|---|---|---|---|---|---|
| V 1 | 12SA7GT | 330KΩ | 92Ω | †1.2KΩ | †1.2KΩ | 22KΩ | 1Ω | 80Ω | 3 Meg. |
| V 2 | 12SK7GT | 330KΩ | 80Ω | 0Ω | 3 Meg. | 0Ω | †1.2KΩ | 65Ω | †1.2KΩ |
| V 3 | 12SQ7GT | 330KΩ | 15 Meg. | 0Ω | 1 Meg. | 0Ω | †470KΩ | 12Ω | 0Ω |
| V 4 | 50L6GT | Inf. | 65Ω | †120Ω | †1.2KΩ | 470KΩ | 3 Meg. | 12Ω | 150Ω |
| V 5 | 35Z5GT | Inf. | 127Ω | 120Ω | 110KΩ | 127Ω | Inf. | 92Ω | 110KΩ |

† Measured From Pin 8 Of V5.

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

©Howard W. Sams & Co., Inc. 1949



1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

# STROMBERG-CARLSON
# TS-15, TS-16, TS-125 SERIES

## IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

MODEL TS-16-L1M

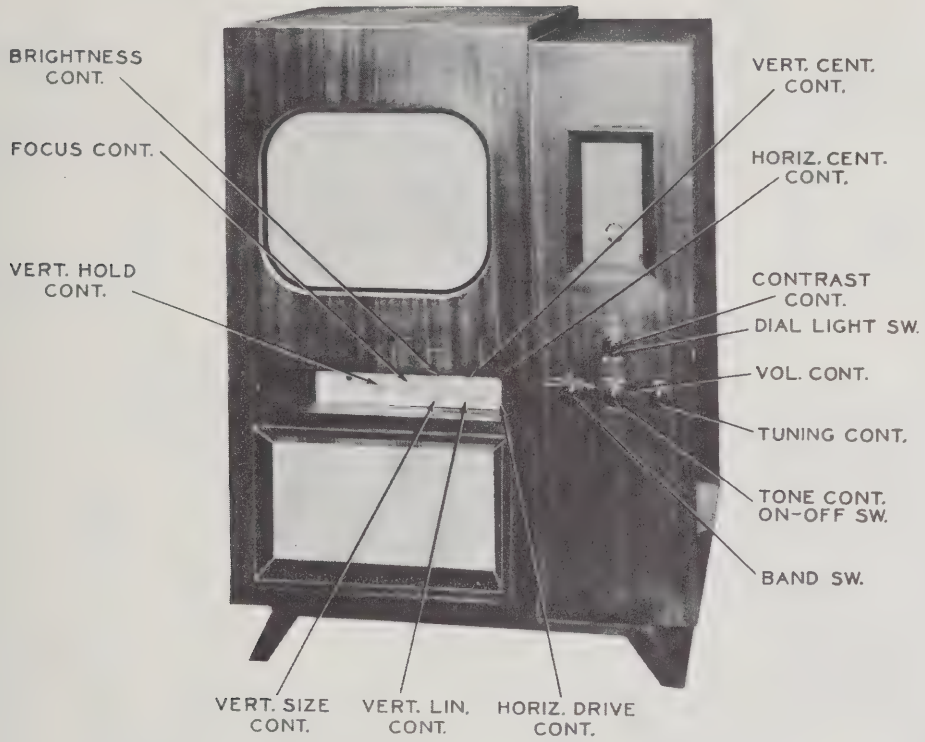
STROMBERG-CARLSON
TS-15, TS-16, TS-125 SERIES

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

Date 10/49 Set No. 72—Folder No. 12

# STROMBERG-CARLSON
# TS-15, TS-16, TS-125 SERIES




| | |
|---|---|
| TRADE NAME | Stromberg-Carlson TS-15 Series, TS-16 Series, TS-125 Series. (See page 27 for individual model and chassis identification) |
| MANUFACTURER | Stromberg-Carlson Co., 100 Carlson Rd., Rochester (3), New York |
| TYPE SET | AM-FM-TV Receiver (Phonographs in Some Models) |
| TUBES | Forty Three (TS-15 and TS-16-Early Productions)<br>Forty Two (Models TS-15 and TS-16-Late Productions, TS-125-L)<br>Forty (Model TS-125-H) |
| POWER SUPPLY | 117 Volts AC-60 Cycle RATING: 3.1 Amp. (Max.) @ 117 Volts AC |
| TUNING RANGES | AM 540-1600KC<br>FM 88-108MC<br>TV Channels 2 thru 13 |

## INDEX

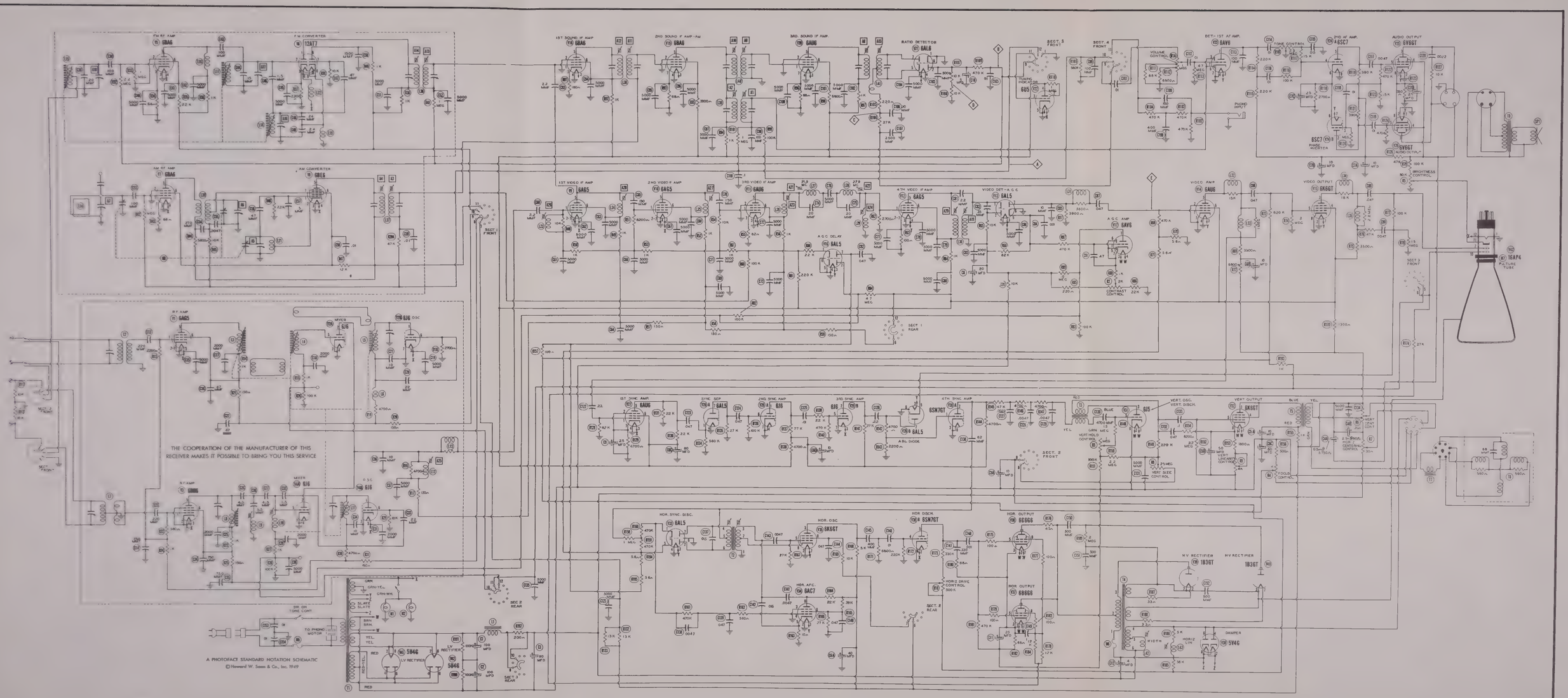

| | | | |
|---|---|---|---|
| Alignment Instructions | 8,9 | Photographs (continued) Chassis-Top View | 3,12 |
| Block Diagram | 7 | High Voltage Power Supply | 10 |
| Dial Cord Stringing | 23 | RF Tuner-Bottom View | 14 |
| Disassembly Instructions | 27 | RF Tuner-Top View | 9 |
| Field Change | 17 | Resistor Identification | 16,25 |
| Horizontal Sweep Circuit Adjustments | 17 | Trans. Inductor and Alignment Identification | 4,13 |
| Parts List and Description | 18 thru 23 | Schematic (Main) | 2 |
| Photographs Cabinet-Rear View | 27 | Schematic (Circuit Variations) | 24 |
| Capacitor Identification | 15,26 | Tube Placement Chart | 5 |
| | | Voltage and Resistance Measurements | 6,11 |

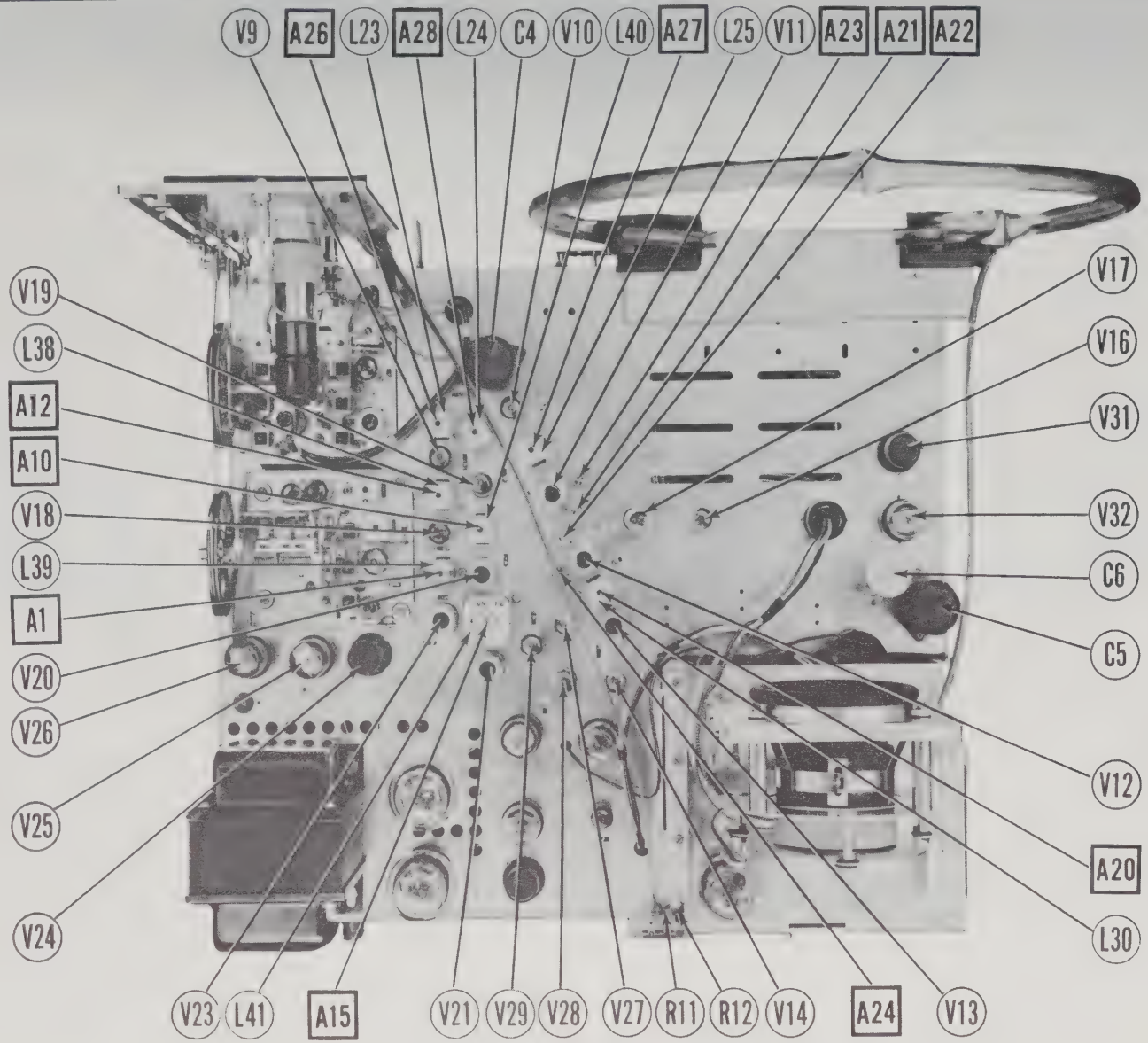

STROMBERG-CARLSON
TS-15, TS-16, TS-125 SERIES

HOWARD W. SAMS & CO., INC. • Indianapolis 7, Indiana

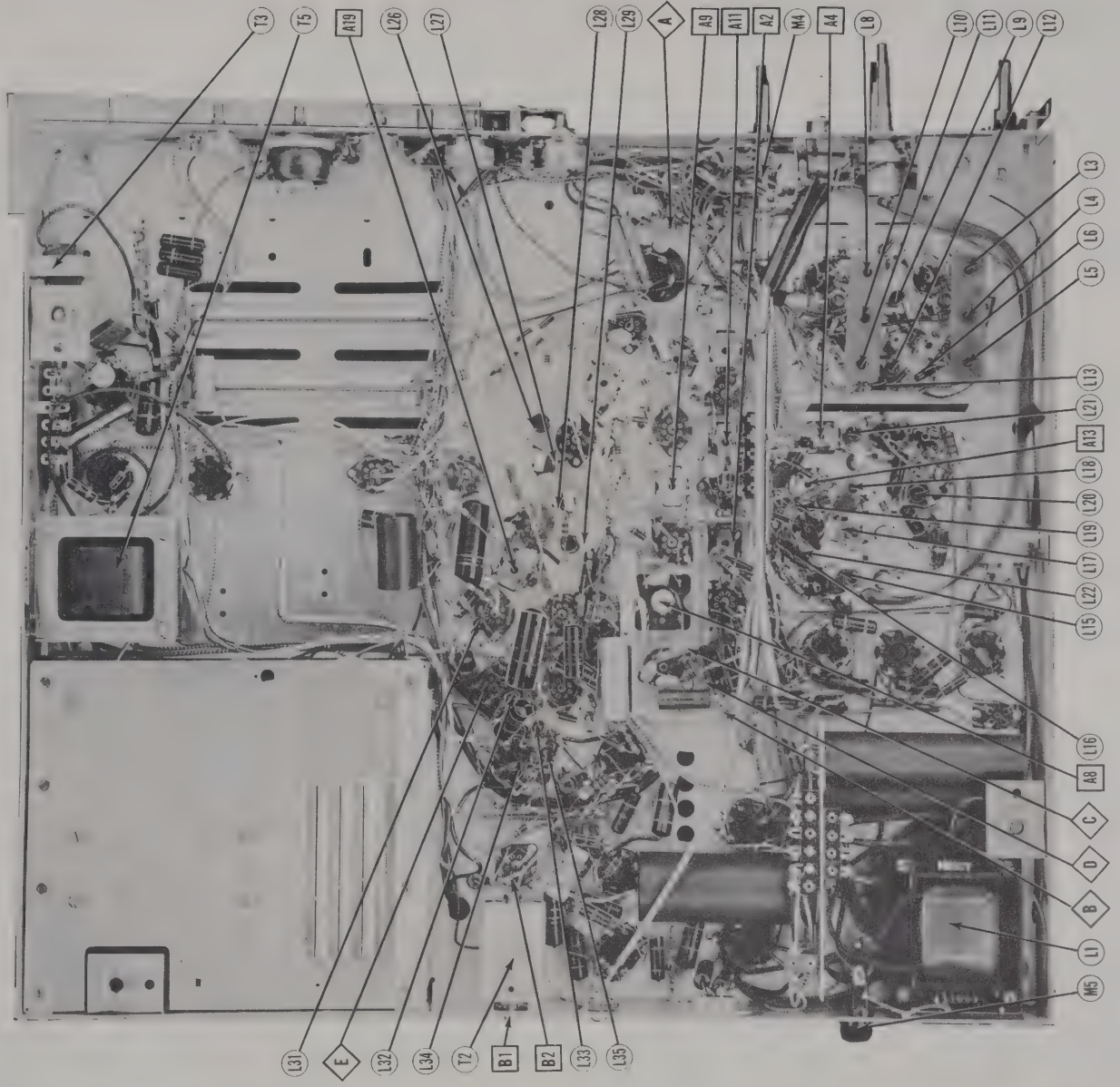
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1949 by Howard W. Sams & Co., Inc., Indianapolis 7, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 10/49 SET #72 FOLDER #12

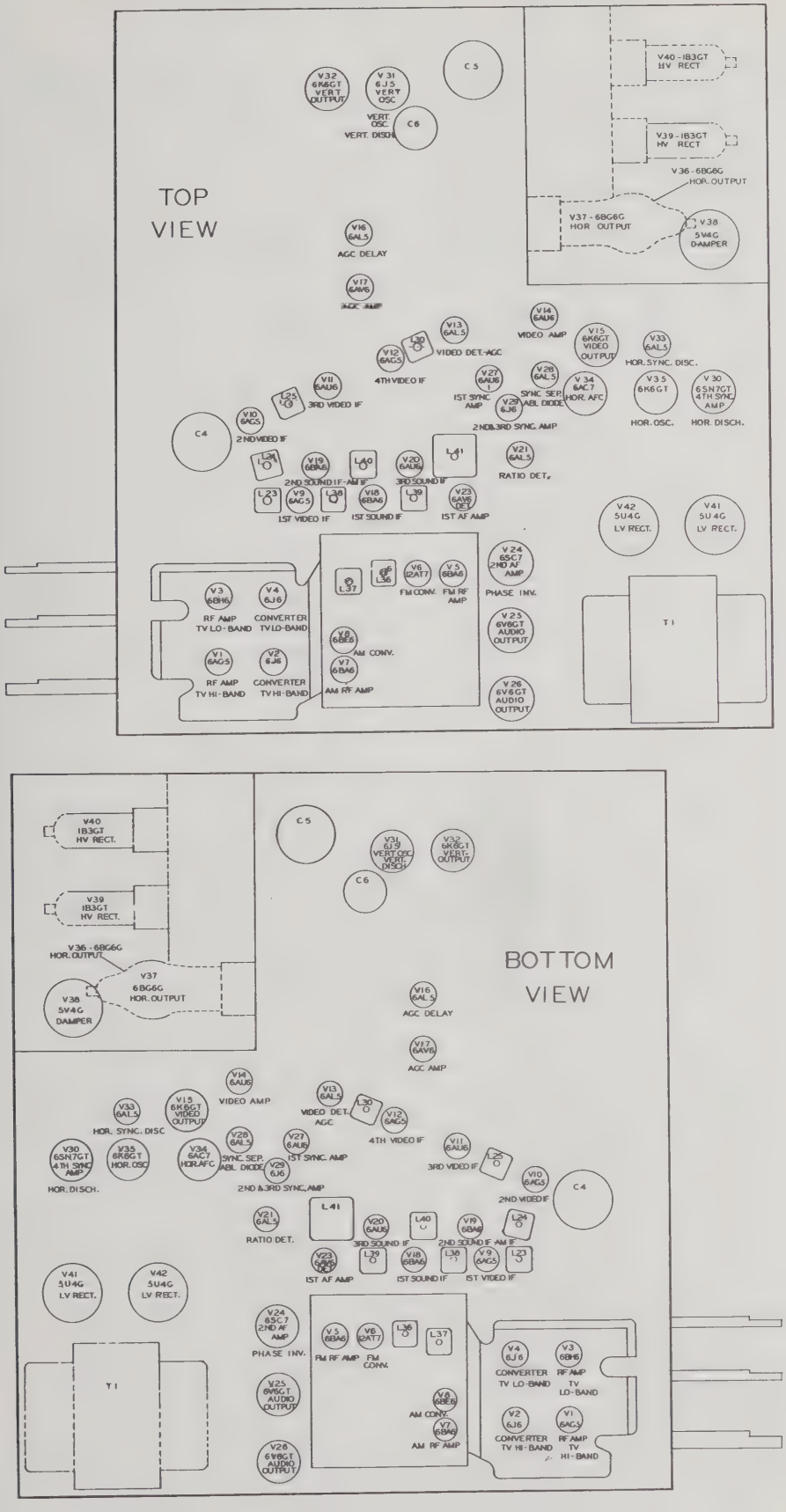

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1949
STROMBERG-CARLSON
TS-15, TS-16, TS-125 SERIES




CHASSIS TOP VIEW




CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION







# TUBE PLACEMENT CHART

# VOLTAGE MEASUREMENTS

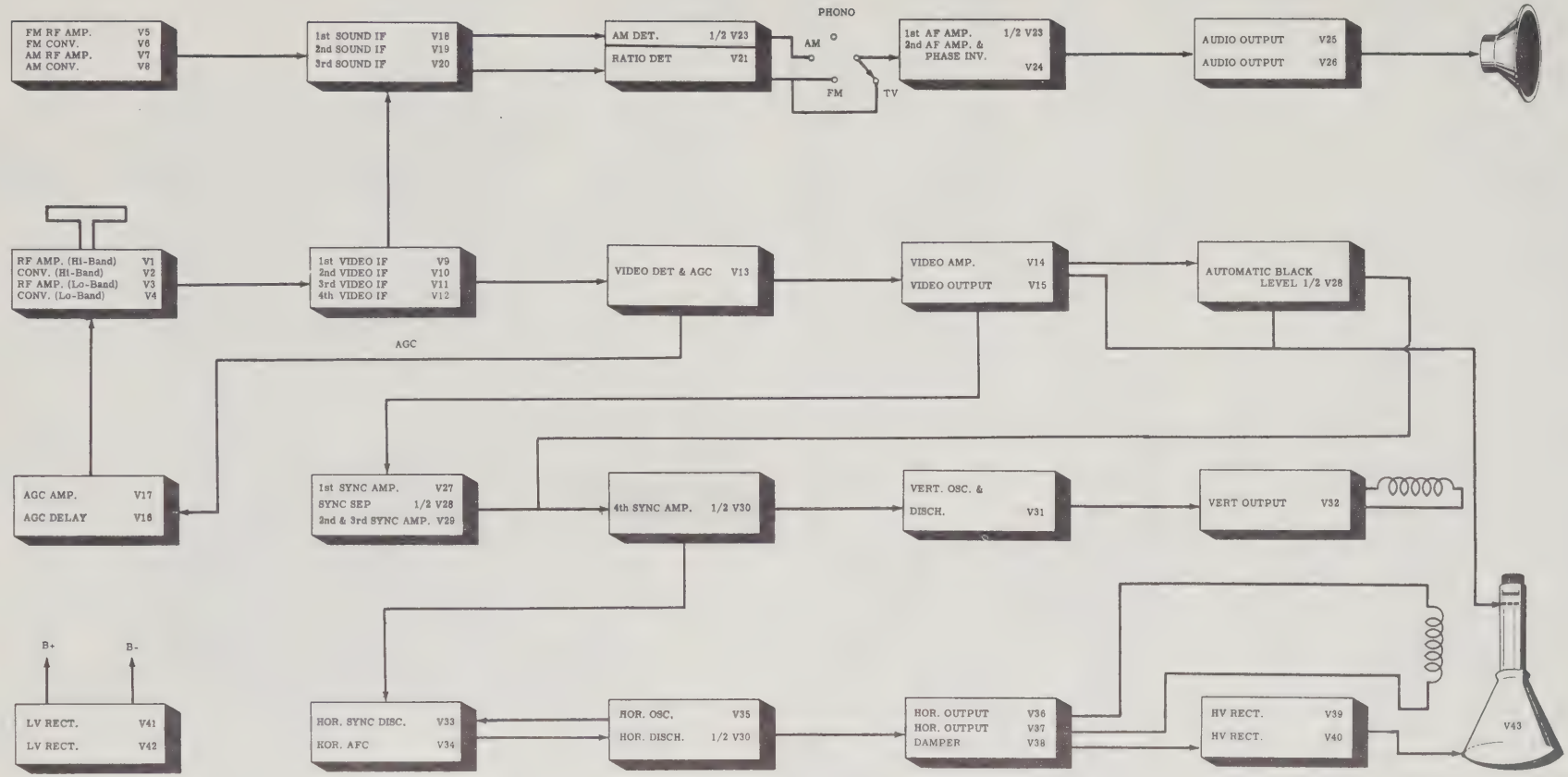
VOLTAGE READINGS

| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6AG5 | -.3VDC | 0V | 6.3VAC | 0V | 160VDC | 185VDC | 0V | | |
| V 2 | 6J6 | 155VDC | 145VDC | 6.3VAC | 0V | -1VDC | §-2.7 VDC | 0V | | |
| V 3 | 6BH6 | -.4VDC | 0V | 6.3VAC | 0V | 205VDC | 205VDC | 0V | | |
| V 4 | 6J6 | 155VDC | 145VDC | 6.3VAC | 0V | -2.9VDC | §-6.8 VDC | 0V | | |
| ‡V5 | 6BA6 | -.2VDC | 0V | 0V | 6.3VAC | 132VDC | 80VDC | .8VDC | | |
| ‡V6 | 12AT7 | 140VDC | 0V | 3.1VDC | 6.3VAC | 6.3VAC | 185VDC | §-5 VDC | 0V | 0V |
| ♦V7 | 6BA6 | ÷2VDC | 0V | 0V | 6.3VAC | 155VDC | 75VDC | .5VDC | | |
| ♦V8 | 6BE6 | §-4.8 VDC | 0V | 0V | 6.3VAC | 180VDC | 75VDC | -.6VDC | | |
| V 9 | 6AG5 | -2.2VDC | 0V | 6.3VAC | 0V | 110VDC | 110VDC | 0V | | |
| V 10 | 6AG5 | -1.1VDC | 0V | 6.3VAC | 0V | 112VDC | 112VDC | 0V | | |
| V 11 | 6AU6 | -.5VDC | 0V | 0V | 6.3VAC | 117VDC | 117VDC | .5VDC | | |
| V 12 | 6AG5 | 0V | 0V | 0V | 6.3VAC | 110VDC | 120VDC | .8VDC | | |
| V 13 | 6AL5 | 0V | ♦ 35VDC | 6.3VAC | 0V | ♦ 37.5 VDC | 0V | -4.3VDC | | |
| V 14 | 6AU6 | -.6VDC | 0V | 6.3VAC | 0V | 190VDC | 127VDC | 0V | | |
| V 15 | 6K6GT | 0V | 0V | 100VDC | 127VDC | -4.1VDC | -24.5 VDC | 6.3VAC | 0V | |
| V 16 | 6AL5 | -.4VDC | -.3VDC | 6.3VAC | 0V | 0V | 0V | -4.3VDC | | |
| V 17 | 6AV6 | ♦24VDC | ♦45VDC | ♯-110 VDC | ♯-110 VDC | ♦45VDC | ♦45VDC | ♦125VDC | | |
| V 18 | 6BA6 | -.1VDC | 0V | 6.3VAC | 0V | 117VDC | 117VDC | 3.1VDC | | |
| V 19 | 6BA6 | -.1VDC | 0V | 6.3VAC | 0V | 120VDC | 117VDC | .8VDC | | |
| V 20 | 6AU6 | 0V | 0V | 6.3VAC | 0V | 122VDC | 105VDC | .6VDC | | |
| V 21 | 6AL5 | 0V | -.2VDC | 6.3VAC | 0V | -.1VDC | 0V | -.2VDC | | |
| V 22 | 6U5 | 6.3VAC | 22VDC | -.7VDC | 125VDC | 0V | 0V | | | |
| V 23 | 6AV6 | -.4VDC | 0V | 6.3VAC | 0V | -.4VDC | -.4VDC | 65VDC | | |
| V 24 | 6SC7 | 0V | 112VDC | 0V | 0V | 110VDC | 1.4VDC | 6.3VAC | 0V | |
| V 25 | 6V6GT | 0V | 0V | 255VDC | 260VDC | 0V | 0V | 6.3VAC | 17VDC | |
| V 26 | 6V6GT | 0V | 0V | 255VDC | 260VDC | 0V | 222VDC | 6.3VAC | 17VDC | |
| V 27 | 6AU6 | -.3VDC | 5.5VDC | 6.3VAC | 0V | 55VDC | 125VDC | 5.5VDC | | |
| V 28 | 6AL5 | 11VDC | -.4VDC | 6.3VAC | 0V | 3.9VDC | 0V | -1.4VDC | | |
| V 29 | 6J6 | 37.5VDC | 65VDC | 6.3VAC | 0V | -4.2VDC | -.9VDC | 0V | | |
| V 30 | 6SN7GT | -.4VDC | 55VDC | 0V | -30VDC | 32VDC 90VDC | 0V | 6.3VAC | 0V | |
| V31 | 6J5 | ♦127VDC | ♯-110 VDC | ♦47VDC ♦365VDC | ♦-.3VDC ♦.4VDC | ♦-.6VDC ♦-.6VDC | ♦125 VDC | ♯-110VDC | ♯-110VDC | |
| V32 | 6K6GT | 0V | ♯-110VDC | ♦360VDC | ♦360VDC | ♦ 0V | ♦35VDC ♦47VDC | ♯-110VDC | ♦35VDC ♦47VDC | |
| V33 | 6AL5 | ♦110VDC | ♦90VDC | 6.3VAC | 0V | ♦125VDC | 0V | ♦90VDC | | |
| V34 | 6AC7 | 0V | 0V | 0V | -.6VDC | .1VDC | 92VDC | 6.3VAC | 135VDC | |
| V35 | 6K6GT | 0V | 0V | 165VDC | 180VDC | -25VDC | 0V | 6.3VAC | .2VDC | |
| V36 | 6BG6G | 0V | ♯-110 VDC | ♦8.6VDC | 0V | -3VDC | ♦8.6VDC | ♯-110VDC | ♦200VDC | TOP CAP * |
| V37 | 6BG6G | 0V | ♯-110 VDC | ♦8.6VDC | 0V | -3VDC | 0V | ♯-110VDC | ♦200VDC | TOP CAP * |
| V38 | 5V4G | 0V | 370VDC | 0V | 280VDC | 0V | 280VDC | 0V | 370VDC | |
| V39 | 1B3GT | * DO NOT MEASURE. | | | | | | | | |
| V40 | 1B3GT | * DO NOT MEASURE. | | | | | | | | |
| V41 | 5U4G | 0V | 290VDC | 0V | 365VAC | 0V | 365VAC | 0V | 290VDC | |
| V42 | 5U4G | 0V | 290VDC | 0V | 365VAC | 0V | 365VAC | 0V | 290VDC | |
| V43 | 16AP4 | 0V | PIN 10 250VDC | PIN 11 0V 75VDC | | PIN 12 6.3VAC | | | | |

Note: Contrast Control Set At Maximum For These Measurements.

♯ 6.3VAC Measured Across Filaments.
* Do Not Measure.
‡ Taken In FM Position.
♦ Measured In AM Position.
§ Taken With Vacuum Tube Voltmeter.
♦ Measured From Pin 8 Of V31.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.




BLOCK DIAGRAM

# ALIGNMENT INSTRUCTIONS

## PRE-ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

It is important that the AM IF's be properly aligned before aligning the FM and TV IF's. When complete receiver alignment is to be performed the procedure outlined should be followed. In the event of replacement of any part in the AM IF's the FM and TV IF's will have to be realigned.

To set dial pointer turn tuning gang completely closed and set pointer even with small diamond at top right edge of dial scale.

During alignment the horizontal oscillator tube (V35) should be removed to remove high voltage shock hazard. Removal of the picture tube is recommended.

## AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | OUTPUT METER | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1 | .01MFD | High side to pin 7 (Grid) of 6BE6 (V8). Low side to chassis. | 455KC (Unmod.) | AM (Fourth pos. clock-wise) | Tuning gang fully closed | DC Probe to Point (A) Common to chassis | A1,A2, A3,A4 | Adjust for maximum deflection. |
| 2 | .01MFD | High side to pin 1 (Grid) of 6BA6 (V7). Low side to chassis. | 1400KC (Unmod.) | " | 1400KC | " | A5,A6 | " |
| 3 | | Loop | " | " | " | " | A7 | Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. |

## FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4 | .01MFD | High side to pin 2 (Grid) of 12AT7 (V6). Low side to chassis. | 21.9MC (Unmod.) | FM (Third pos. clock-wise) | Point of non interference | DC Probe to Point (B) Common to chassis | A8,A9, A10, A11, A12, A13, A14 | Adjust for maximum deflection. |
| 5. | .01MFD | High side to pin 1 (Grid) of 6AU6 (V20). Low side to chassis. | " | " | " | DC Probe to Point (C) Common to Point (D) | A15 | Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. |

## FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 4 | .01MFD | High side to pin 2 (Grid) of 12AT7 (V6). Low side to chassis. | 21.9MC (450KC Sweep) | FM | Point of non interference | Vert. Amp. to Point (B) Low side to chassis. | A8,A9, A10, A11, A12, A13, A14 | Disconnect stabilizer capacitor C10. Adjust for maximum amplitude and symmetry as per Fig 1. |
| 5 | .01MFD | " | " | " | " | Vert. Amp. to Point (C) Low side to chassis. | A15 | Reconnect C10. Adjust A15 so 21.9MC marker appears at center of cross-over lines as per Fig 2. Slightly retouch A8 for maximum amplitude and straightness of crossover lines. |

## FM RF ALIGNMENT

Turn the AM tuning gang fully closed; Pointer should be even with small diamond at upper right of dial scale. Adjust slugs, (A16, A17 and A18), so that slug end in even with the bottom of the coil form.

| | DUMMY ANTENNA | SIGNAL GENERATOR COUPLING | SIGNAL GENERATOR FREQUENCY | BAND SWITCH POS. | RADIO DIAL SETTING | CONNECT VTVM | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 6 | Two 150Ω carbon res. | To antenna terminals with 150Ω in each lead. | 108MC (Unmod.) | FM | 108MC | DC Probe to Point (B) Common to chassis | A16, A17 | Adjust for maximum deflection. |
| 7 | " | " | " | " | " | " | A18 | Rock tuning gang and adjust for maximum deflection. |
| 8 | " | " | 88MC | " | 88MC | " | | If calibration is off, move leads in the FM oscillator section for maximum deflection. Repeat steps 6,7, and 8 until no further improvement can be made. |

FIG. 1

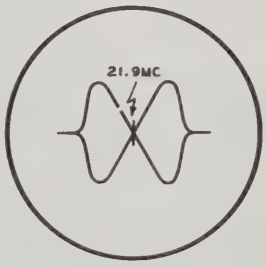



FIG. 2

# ALIGNMENT INSTRUCTIONS (CONT.)

## VIDEO IF ALIGNMENT

Set the selector switch to high band TV. (second position clockwise).
Turn dial to a position that causes no interference with the pattern on oscilloscope.

| | DUMMY ANTENNA | SWEEP GENERATOR COUPLING | SWEEP GENERATOR FREQUENCY | MARKER GENERATOR FREQUENCY | CHANNEL | CONNECT SCOPE | ADJUST | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 9. | 220MMF | High side to pin 1 (Grid) of 6AG5 (V12) Low side to chassis. | 24.8MC (10MC Sweep) | 24.8MC | Any (See note a-bove) | Vert. Amp. to Point (E) Low side to chassis. | A19,A20 | Adjust for a symmetrical response about 24.8MC as per Fig 3. |
| 10. | 220MMF | High side to pin 1 of 6AU6 (V11). Low side to chassis. | Not used | 21.9MC (30% 400~ Mod.) | " | " | A21 | Adjust for minimum response on oscilloscope. |
| 11. | 220MMF | " | " | 27.9MC (30% 400~ Mod.) | " | " | A22 | " |
| 12. | 220MMF | High side to pin 1 (Grid) of 6AU6 (V20). Low side to chassis. | 24.8MC (10MC Sweep) | 24.8MC | " | " | A23, A24 | Adjust for symmetrical response about 24.8MC as per Fig 4. |
| 13. | Direct | High side to un-grounded tube shield floating over converter tube (V2). Low side to chassis. | Not used | 24.8MC (30% 400~ Mod.) | " | " | A25 | Shunt L23 with a 680Ω carbon resistor. Adjust A25 for maximum response on oscilloscope. |
| 14. | Direct | " | " | " | " | " | A26 | Remove 680Ω resistor from L23 and shunt L12 with it. Adjust A26 for maximum response on oscilloscope. Remove shunting resistor. |
| 15 | Direct | " | 24.8MC (10MC Sweep) | 26.4MC 22.7MC | " | " | A27, A28 | Adjust for response as per Fig 5. If proper response cannot be obtained adjust A27 and A28 for best response and repeat steps 13 and 14. |

THE RF TUNER IN THIS RECEIVER IS PRE-SET AT THE FACTORY AND IS NORMALLY VERY STABLE AND SHOULD NOT REQUIRE ADJUSTMENT IN THE FIELD.

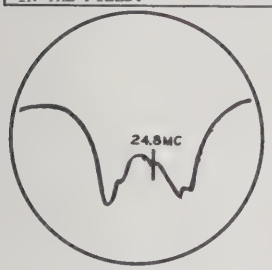



FIG. 3

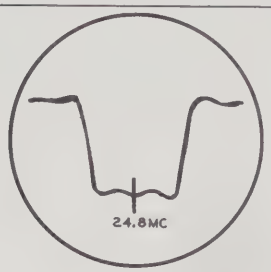



FIG. 4

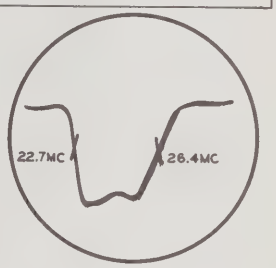
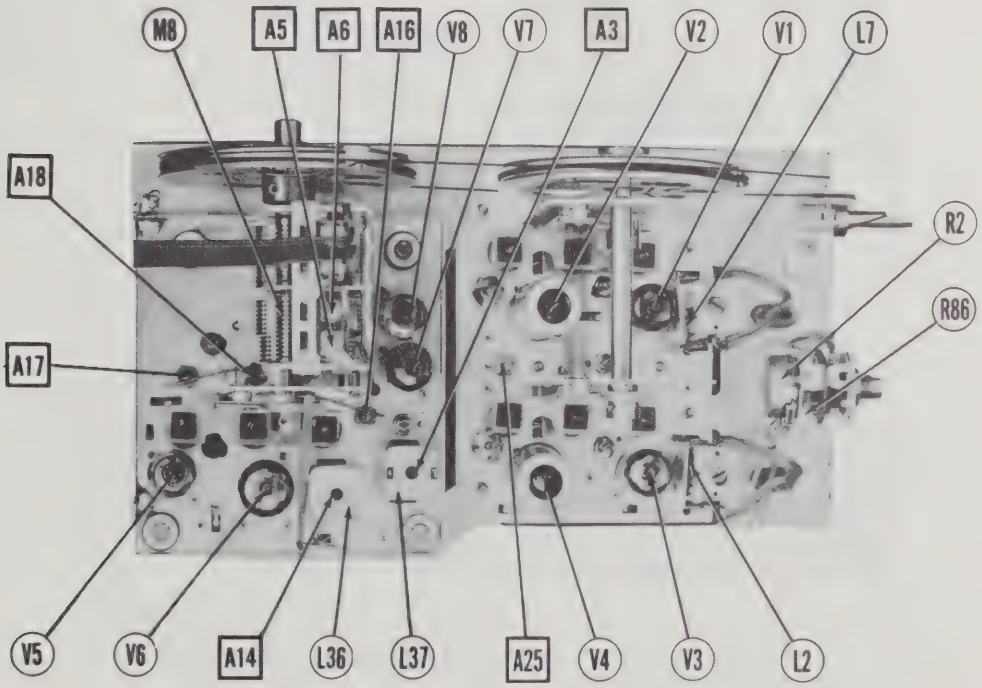
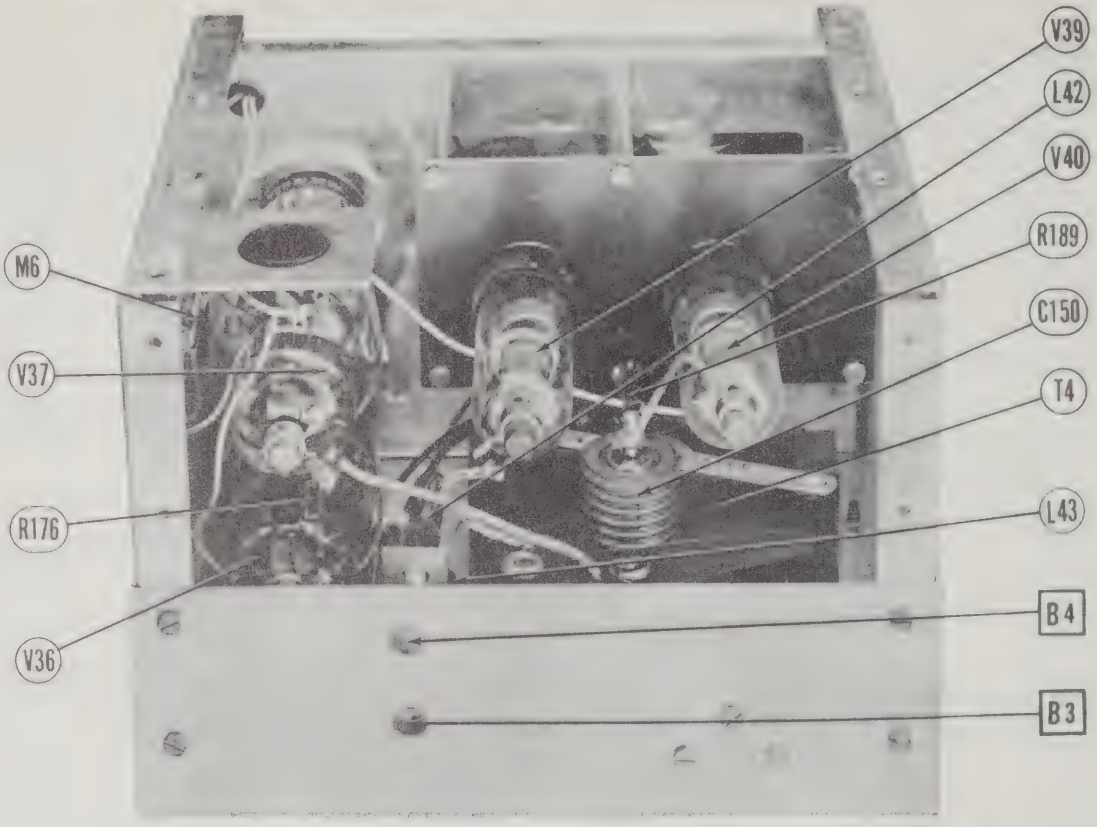


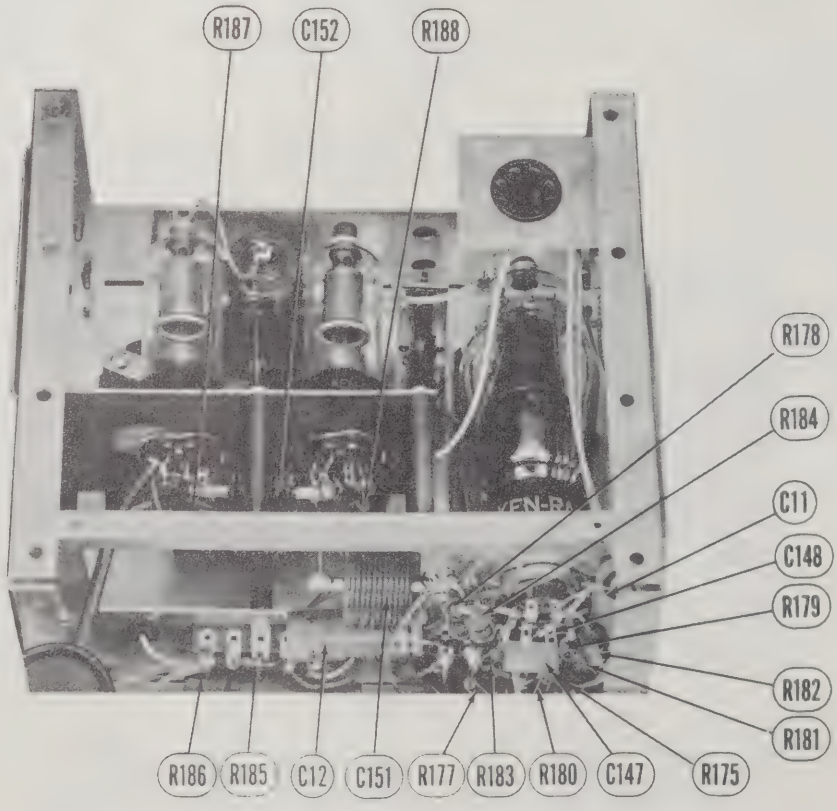

FIG. 5




RF TUNER - TOP VIEW




HIGH VOLTAGE SUPPLY - TOP VIEW




HIGH VOLTAGE SUPPLY - BOTTOM VIEW

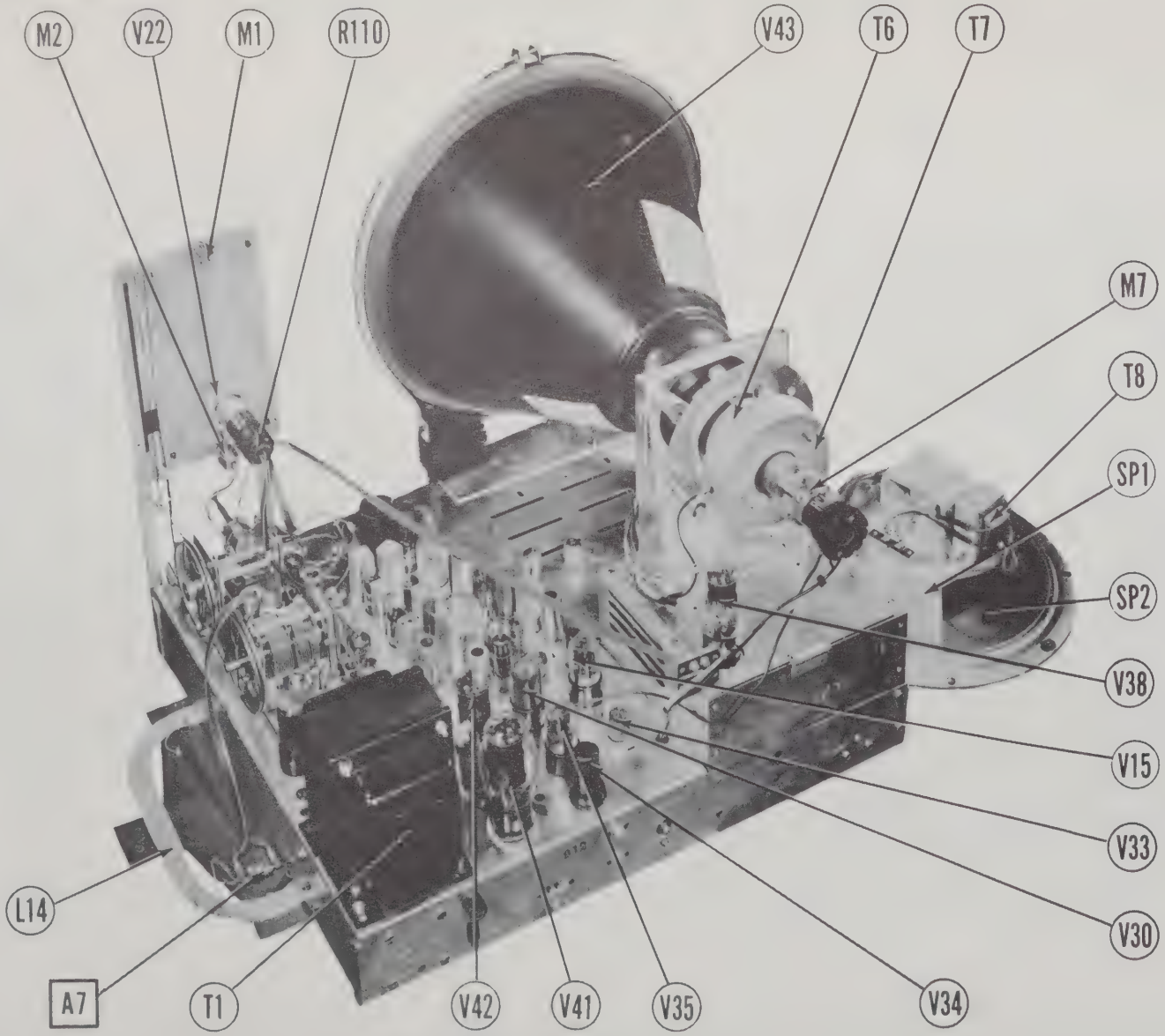
# RESISTANCE MEASUREMENTS

RESISTANCE READINGS

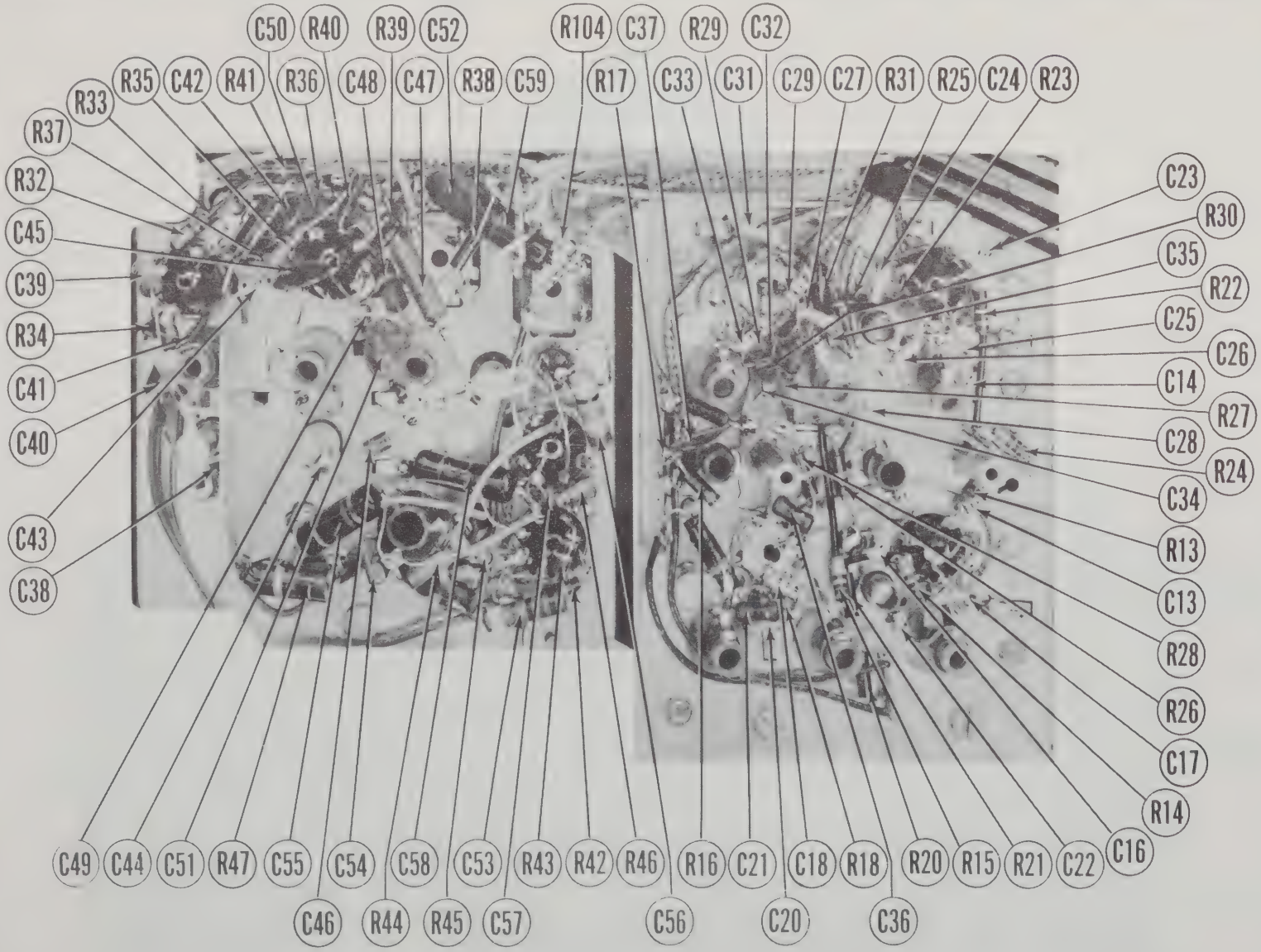
| Item | Tube | Pin 1 | Pin 2 | Pin 3 | Pin 4 | Pin 5 | Pin 6 | Pin 7 | Pin 8 | Pin 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| V 1 | 6AG5 | 200KΩ | 0Ω | .1Ω | 0Ω | †8KΩ | †7KΩ | 0Ω | | |
| V 2 | 6J6 | †6.5KΩ | †1.8KΩ | .1Ω | 0Ω | 100KΩ | 8.2KΩ | 0Ω | | |
| V 3 | 6BH6 | 200KΩ | 0Ω | .1Ω | 0Ω | †8KΩ | †7KΩ | 0Ω | | |
| V 4 | 6J6 | †11KΩ | †1.8KΩ | .1Ω | 0Ω | 100KΩ | 10KΩ | 0Ω | | |
| ‡V5 | 6BA6 | 750KΩ | 0Ω | 0Ω | .1Ω | †8KΩ | †28KΩ | 68Ω | | |
| ‡V6 | 12AT7 | †8KΩ | .1Ω | 2.2KΩ | .1Ω | .1Ω | †8KΩ | 10KΩ | 0Ω | 0Ω |
| ♦V7 | 6BA6 | 2.5 Meg. | 0Ω | 0Ω | .1Ω | †12KΩ | †19KΩ | 68Ω | | |
| ♦V8 | 6BE6 | 22KΩ | 1Ω | 0Ω | .1Ω | †7KΩ | †19KΩ | 1.6 Meg. | | |
| V 9 | 6AG5 | 320KΩ | 0Ω | .1Ω | 0Ω | †2.5KΩ | †2.5KΩ | 0Ω | | |
| V 10 | 6AG5 | 320KΩ | 0Ω | .1Ω | 0Ω | †2.5KΩ | †2.5KΩ | 0Ω | | |
| V 11 | 6AU6 | 320KΩ | 0Ω | 0Ω | .1Ω | †2.2KΩ | †2.2KΩ | 82Ω | | |
| V 12 | 6AG5 | 1Ω | 0Ω | 0Ω | .1Ω | †2.2KΩ | †2.2KΩ | 100Ω | | |
| V 13 | 6AL5 | 1Ω | ♦ 20KΩ | .1Ω | 0Ω | ♦ 95KΩ | 0Ω | 4KΩ | | |
| V 14 | 6AU6 | 470KΩ | 0Ω | .1Ω | 0Ω | †10KΩ | †1000Ω | 0Ω | | |
| V 15 | 6K6GT | Inf. | 0Ω | †4.5KΩ | †1000Ω | 500KΩ | 120Ω | .1Ω | 0Ω | |
| V 16 | 6AL5 | 330KΩ | 200KΩ | .1Ω | 0Ω | 0Ω | 0Ω | 22Ω | | |
| V 17 | 6AV6 | 560KΩ | ♦ 9KΩ | 600Ω | 600Ω | ♦ 9KΩ | ♦ 9KΩ | 100KΩ | | |
| V 18 | 6BA6 | 1.5 Meg | 0Ω | .1Ω | 0Ω | †2KΩ | †2KΩ | 180Ω | | |
| V 19 | 6BA6 | 1.7 Meg | 0Ω | .1Ω | 0Ω | †2KΩ | †4.5KΩ | 68Ω | | |
| V 20 | 6AU6 | 0Ω | 0Ω | .1Ω | 0Ω | †2KΩ | †8KΩ | 68Ω | | |
| V 21 | 6AL5 | 0Ω | 20KΩ | .1Ω | 0Ω | Inf. | 0Ω | Inf. | | |
| V 22 | 6U5 | .1Ω | †1 Meg | 500KΩ | †1.2KΩ | 0Ω | 0Ω | | | |
| V 23 | 6AV6 | 4.7 Meg | 0Ω | .1Ω | 0Ω | 650KΩ | 650KΩ | †490KΩ | | |
| V 24 | 6SC7 | 0Ω | †430KΩ | 1 Meg. | 15KΩ | †430KΩ | 2.7KΩ | .1Ω | 0Ω | |
| V 25 | 6V6GT | 0Ω | 0Ω | †350Ω | †80Ω | 470KΩ | Inf. | .1Ω | 330Ω | |
| V 26 | 6V6GT | 0Ω | 0Ω | †370Ω | †80Ω | 470KΩ | †47KΩ | .1Ω | 330Ω | |
| V 27 | 6AU6 | 82KΩ | 4.7KΩ | .1Ω | 0Ω | †16KΩ | †1.3KΩ | 4.7KΩ | | |
| V 28 | 6AL5 | 560KΩ | 7KΩ | .1Ω | 0Ω | 1.5 Meg | 0Ω | 27KΩ | | |
| V 29 | 6J6 | †33KΩ | †33KΩ | .1Ω | 0Ω | 500KΩ | 100KΩ | 0Ω | | |
| V 30 | 6SN7GT | 2.2KΩ | †11KΩ | 0Ω | 220KΩ | †900KΩ<br>†360KΩ | 0Ω | .1Ω | 0Ω | |
| V31 | 6J5 | 0Ω | 600Ω | †2.2 Meg<br>†240KΩ | 1.2 Meg<br>100KΩ | 2.8Meg<br>1.7Meg | 17Ω | 600Ω | 600Ω | |
| V32 | 6K6GT | Inf. | 600Ω | †2KΩ | †2KΩ | 2.2 Meg | 15KΩ<br>11KΩ | 600Ω | 6KΩ<br>2.5KΩ | |
| V33 | 6AL5 | 1 Meg. | 1.5 Meg | .1Ω | 0Ω | 11.5Ω | 0Ω | 1.5 Meg | | |
| V34 | 6AC7 | 0Ω | 0Ω | 0Ω | 1.5 Meg | 10Ω | †26KΩ | .1Ω | †23KΩ | |
| V35 | 6K6GT | Inf. | 0Ω | †5.5KΩ | †10KΩ | 27KΩ | Inf. | .1Ω | 10Ω | |
| V36 | 6BG6G | Inf. | 600Ω | ♦ 68Ω | Inf. | 470KΩ | ♦ 68Ω | 600Ω | †6KΩ | TOP CAP<br>† 5KΩ |
| V37 | 6BG6G | Inf. | 600Ω | ♦ 68Ω | Inf. | 470KΩ | Inf. | 600Ω | †6KΩ | TOP CAP<br>† 5KΩ |
| V38 | 5V4G | Inf. | †5KΩ | Inf. | †90Ω | Inf. | †90Ω | Inf. | †5KΩ | |
| V39 | 1B3GT | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | TOP CAP<br>† 5KΩ |
| V40 | 1B3GT | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | Inf. | TOP CAP<br>Inf. |
| V41 | 5U4G | Inf. | 15KΩ | Inf. | 610Ω | Inf. | 615Ω | Inf. | 15KΩ | |
| V42 | 5U4G | Inf. | 15KΩ | Inf. | 610Ω | Inf. | 615Ω | Inf. | 15KΩ | |
| V43 | 16AP4 | 0Ω | 1.6 Meg | PIN 10<br>†28KΩ | PIN 11<br>34KΩ 1Ω | PIN 12<br>.1Ω | | | | |

† Measured From Pin 8 Of V42.
‡ Taken In FM Position.
♦ Measured In AM Position.
♦ Measured From Pin 8 Of V31.

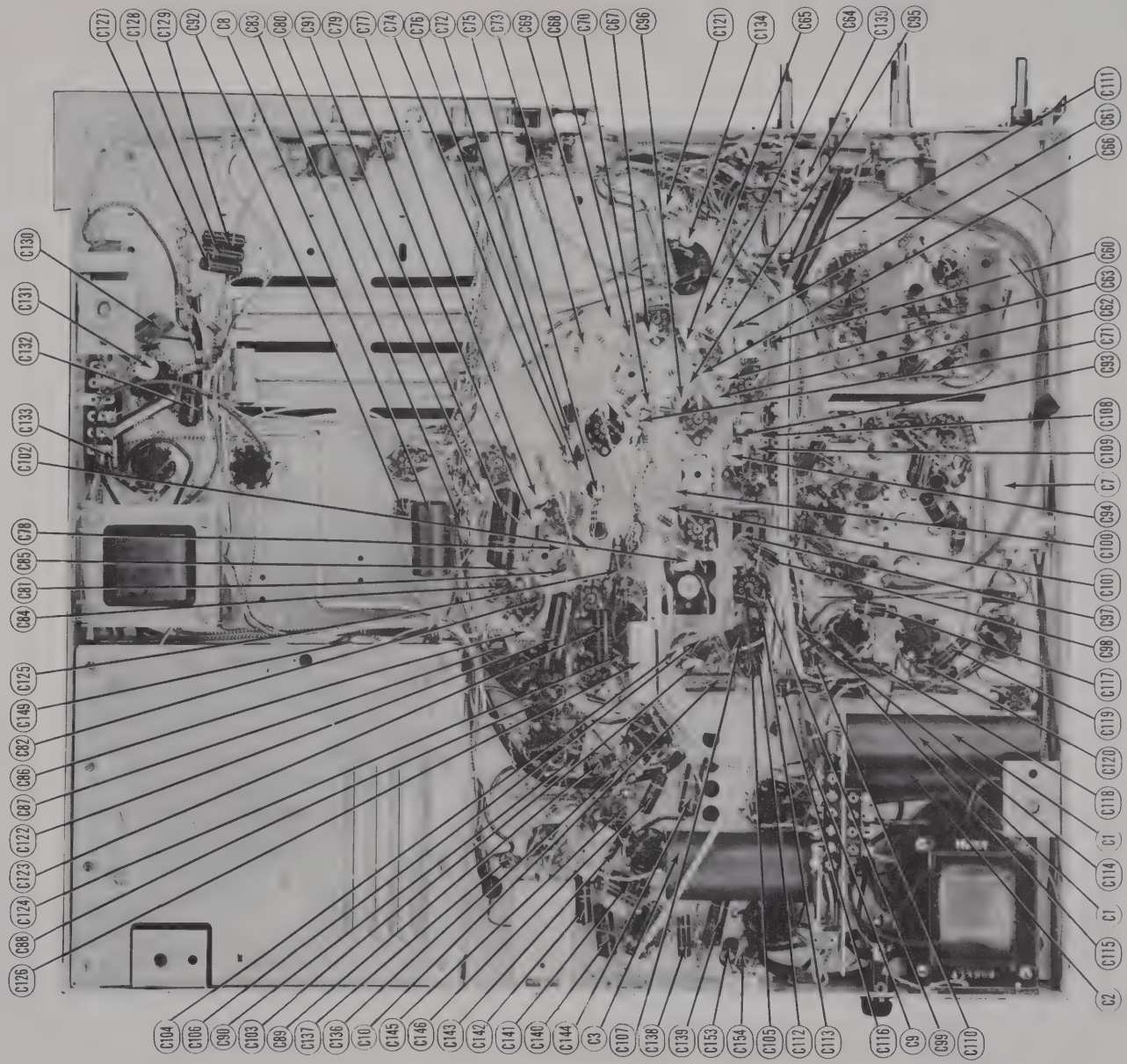
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.




CHASSIS TOP VIEW




RF TUNER-BOTTOM VIEW




CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

## HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Adjust the horizontal speed adjustment (B1) until the picture syncs horizontally.

Turn the horizontal centering control until the side of the raster is visable. Turn the contrast control to slightly less than normal. Turn the brightness control until gray bar appears at side of raster. Turn the horizontal centering control until opposite side of raster is visable, if the gray bars are not of equal width on either side of raster turn the horizontal phase control (B2) until they are equal, check by turning the horizontal centering back and forth to observe both sides of raster.

Turn the horizontal drive control from maximum counterclockwise until folding of raster just disappears.

Turn the horizontal size adjustment (B3) so test pattern fills the mask.

Turn the horizontal linearity adjustment (B4) for best linearity of pattern horizontally, slightly readjustment of horizontal drive control may be necessary to obtain optimum results.

## VERTICAL LINEARITY ADJUSTMENTS

Turn the vertical size control until the test pattern fills the mask vertically.

Turn the vertical linearity control for best linearity vertically readjustment of the vertical size control may be necessary.

FIELD CHANGE TO PREVENT TEARING AT TOP OF PICTURE ON MODEL TS-16, (ALL PARTS FOR THIS CHANGE MAY BE OBTAINED UNDER STROMBERG-CARLSON KIT #81401) NOTE: Check receiver throughly to see If these changes have entirely or partially been made.

1. Change C-125 from .01MF to .047MF; 400V (SC #110544) located between pin 1 of V-29 (6J6) and 4th point of 5 point terminal board just forward of V-29.
2. Change R-136 from 100K ½ watt to 1 Meg. ½ watt (SC #149119) located between pin 6 of V-29 (6J6) and ground. In some TS-16 chassis the 2 changes described above have been made at the factory.
3. Change R-68 from 470K ½ watt to 2.2 Meg ohm ½ watt (SC-#149121) located between pin 1 of V-14 (6AU6) and middle point of 3 point terminal board (vertical) just below right hand corner of high-voltage power supply.
4. Change C-123 from .047MF to .22MF; 400V (SC #110548) located between pin 1 of V-28A (6AL5) and pin 5 of V-27 (6AU6). (Just above shielded capacitor).
5. Change C-82 from 33MMF to 3.3MMF (SC #110440) located between pins 1 and 2 of V22 (6AL5) video detector.
6. Change point of feeding the plate and screen of V-27 (6AU6) to other end of R-138. This requires removing lead from pin 6 of V-14 (6AU6) 1st video amplifier to pin 6 of V-27 (6AU6) 1st sync amplifier, and lead from pin 6 of V-27 to end terminal of 5 point terminal board. Replace these two leads with one from pin 6 of V-14 to end terminal of 5 point terminal board. Connect pin 6 of V-27 to junction of R-138 4700 ohm resistor, R-137-27,000 ohm resistor and R-141-27,000 ohm resistor. Disconnect R-130 22K plate resistor from 2nd terminal of the 5 point terminal board and connect to screen, pin 6 of V-27.
7. It will be necessary to check the alignment of the last video IF stage to compensate for changing C-82.

# PARTS LIST AND DESCRIPTIONS

## TUBES (SYLVANIA or Equivalent)

| ITEM No. | USE | REPLACEMENT DATA | | RMA BASE TYPE | NOTES |
|---|---|---|---|---|---|
| | | STROM. CARL. PART No. | STANDARD REPLACEMENT | | |
| V1 | TV RF Amp. (High Band) | 6AG5 | 6AG5 | 7BD | |
| V2 | TV Converter (High Band) | 6J6 | 6J6 | 7BF | |
| V3 | TV RF Amp. (Low Band) | 6BH6 | 6BH6 | 7CM | |
| V4 | TV Converter (Low Band) | 6J6 | 6J6 | 7BF | |
| V5 | FM RF Amp. | 6BA6 | 6BA6 | 7BK | |
| V6 | FM Converter | 12AT7 | 12AT7 | 9A | |
| V7 | AM RF Amp. | 6BA6 | 6BA6 | 7BK | |
| V8 | AM Converter | 6BE6 | 6BE6 | 7CH | |
| V9 | 1st Video IF Amp. | 6AG5 | 6AG5 | 7BD | |
| V10 | 2nd Video IF Amp. | 6AG5 | 6AG5 | 7BD | |
| V11 | 3rd Video IF Amp. | 6AU6 | 6AU6 | 7BK | |
| V12 | 4th Video IF Amp. | 6AG5 | 6AG5 | 7BD | |
| V13 | Video Det.-AGC | 6AL5 | 6AL5 | 6BT | |
| V14 | Video Amp. | 6AU6 | 6AU6 | 7BK | |
| V15 | Video Output | 6K6GT | 6K6GT | 7S | |
| V16 | AGC Delay | 6AL5 | 6AL5 | 6BT | |
| V17 | AGC Amp. | 6AV6 | 6AV6 | 7BT | |
| V18 | 1st Sound IF Amp. | 6BA6 | 6BA6 | 7BK | |
| V19 | 2nd Sound IF Amp.-AM IFAmp. | 6BA6 | 6BA6 | 7BK | |
| V20 | 3rd Sound IF Amp. | 6AU6 | 6AU6 | 7BK | |
| V21 | Ratio Det. | 6AL5 | 6AL5 | 6BT | |
| V22 | Tuning Indicator | 6U5 | 6U5 | 6R | |
| V23 | DET-1st AF Amp. | 6AV6 | 6AV6 | 7BT | |
| V24 | 2nd AF Amp.-Phase Inverter | 6SC7 | 6SC7 | 8S | (Not used in model TS-125-H) |
| V25 | Audio Output | 6V6GT | 6V6GT | 7AC | (Not used in model TS-125-H) |
| V26 | Audio Output | 6V6GT | 6V6GT | 7AC | |
| V27 | 1st Sync. Amp. | 6AU6 | 6AU6 | 7BK | |
| V28 | Sync. Sep.-ABL Diode | 6AL5 | 6AL5 | 6BT | |
| V29 | 2nd & 3rd Sync. Amp. | 6J6 | 6J6 | 7BF | |
| V30 | 4th Sync. Amp.-Hor. Disch. | 6SN7GT | 6SN7GT | 8BD | |
| V31 | Vert. Osc.-Vert Disch. | 6J5 | 6J5 | 6Q | |
| V32 | Vert. Output | 6K6GT | 6K6GT | 7S | |
| V33 | Hor. Sync. Disc. | 6AL5 | 6AL5 | 6BT | |
| V34 | Hor. AFC | 6AC7 | 6AC7 | 8N | |
| V35 | Hor. Osc. | 6K6GT | 6K6GT | 7S | |
| V36 | Hor. Output | 6BG6G | 6BG6G | 5BT | |
| V37 | Hor. Output | 6BG6G | 6BG6G | 5BT | (Not used in TS-125 or late production TS-15 and TS-16) |
| V38 | Damper | 5V4G | 5V4G | 5L | |
| V39 | HV Rectifier | 1B3GT | 1B3GT | 3C | |
| V40 | HV Rectifier | 1B3GT | 1B3GT | 3C | |
| V41 | LV Rectifier | 5U4G | 5U4G | 5T | |
| V42 | LV Rectifier | 5U4G | 5U4G | 5T | |
| V43A | Picture Tube | 16AP4 | 16AP4 | | Used in chassis TS-16 |
| B | Picture Tube | 15AP4 | 15AP4 | | Used in chassis TS-15 |
| C | Picture Tube | 12KP4 | 12KP4 | | Used in chassis TS-125 |
| D | Picture Tube | 12LP4 | 12LP4 | | Used in chassis TS-125 |
| E | Picture Tube | 12QP4 | 12QP4 | | Used in chassis TS-125 |

## CAPACITORS

**Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.**

| ITEM No. | RATING | | REPLACEMENT DATA | | | | | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| | CAP. | VOLT | STROM. CARL. PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | |
| C1 | 100 | 300 | 111049 | AFH20G | UP10AJ 932 | | TVL-4 | Filter |
| C2 | 100 | 300 | 111049 | AFH20G | UP10AJ 932 | | TVL-4 | " |
| C3 | 90 | 475 | 111051 | AF18X | UP11AJ 935 | | TVL-9 | " |
| C4A | 0.5Ω @ 15 | 750V | 111052 | | UP7BJ934 | | D12966 | ◓ Hor. Cent. Cont. Bypass |
| B | 2.5Ω @ | 600V | | | | | | ▲ Vert. Cent. Cont. Bypass |
| C5A | 10 | 475 | 111050 | AF2X2J16E10B | UP8DJ933 | | TVL-37 | ◓ Vert. Output Dec. |
| B | 10 | 450 | | | | | | ■ Decoupling |
| C | 80 | 200 | | | | | | ▲ Filter |
| D | 50 | 50 | | | | | | Vert. Output Cath. Bypass |
| C6A | 40 | 400 | 111066 | AF8I2H162F | UP11DJ931 | | TVL-35 | ◓ Filter |
| B | 10 | 350 | | | | | | ■ Low Pass Filter |
| C | 80 | 250 | | | | | | ▲ Decoupling |
| D | 10 | 250 | | | | | | Decoupling |
| C7A | 10 | 400 | 111053 | AF222J5A | UP7DJ930 | | D-12969 | ◓ Decoupling |
| B | 10 | 400 | | | | | | ■ Decoupling * |
| C | 25 | 25 | | | | | | ▲ AF Cath. Bypass |
| D | 25 | 25 | | | | | | Output Cath. Bypass |
| C8 | 20 | 250 | 111031 | PRS250/20 | BR2025 | | UT-202 | AGC Filter |
| C9 | 25 | 25 | 111026 | PRS25/25 | BR252A | | TVA-6 | 1st Sync. Amp. Cath. Byp. |
| C10 | 5 | 50 | 111047 | PRS150/4 | BBR5-50T | | TVA-13 | Stabilizing Cap. |
| C11 | 25 | 25 | 111026 | PRS25/25 | BR252A | | TVA-6 | Hor. Output Cath. Byp. †† |
| C12 | 4 | 150 | 111042 | PRS150/4 | BR415 | | UT-41 | Damper Filter |
| C13 | 220 | | 110462 | | | GP2K-220 | | RF Coupling |
| C14 | 750 | | 110654 | | | GP2K-750 | | AGC Filter |
| C15 | 5000 | | 110586 | | | 811-005 | | RF Fil. Bypass * |
| C16 | 47 | | 110483 | | | GP1K-47 | | RF Decoupling † |
| C17 | 2000 | | 110652 | | | GP2M-002 | | RF Plate Decoupling |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CAPACITORS (CONT.)

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA STROM. CARL. PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C18 | 2000 | | 110652 | | | GP2M-002 | | Bias Filter |
| C19 | 5000 | | 110586 | | | 811-005 | | Mixer Fil. Bypass * |
| C20 | 22 | | 110653 | | | GP1K-22 | | Osc. Grid Cap. |
| C21 | 10 | | 110656 | | | N750K-10 | | Osc. Feedback |
| C22 | 47 | | 110483 | | | GP1K-47 | | Decoupling † |
| C23 | 220 | | 110462 | | | GP2K-220 | | RF Coupling |
| C24 | 750 | | 110654 | | | GP2K-750 | | RF Decoupling |
| C25 | 2000 | | 110652 | | | GP2M-002 | | RF Plate Decoupling |
| C26 | 4.5 | | 110673 | | | NP0K-4.7 | | RF Coupling |
| C27 | 4.5 | | 110673 | | | NP0K-4.7 | | RF Coupling |
| C28 | 5.5 | | 110655 | | | | | Fixed Trimmer |
| C29 | 2000 | | 110652 | | | GP2M-002 | | Bias Filter |
| C30 | 5000 | | 110586 | | | 811-005 | | Bias Filter * |
| C31 | 2000 | | 110586 | | | GP2M-002 | | Mixer Fil.Bypass ‡ |
| C32 | 1.5 | | 110438 | | | NP0K-1.5 | | Osc. Coupling |
| C33 | 22 | | 110653 | | | GP1K-22 | | Osc. Grid Cap. |
| C34 | 10 | | 110656 | | | GP1K-10 | | Osc. Feedback |
| C35 | 750 | | 110654 | | | GP2K-750 | | Decoupling |
| C36 | 10 | | 110656 | | | N750K-10 | | Fixed Trimmer |
| C37 | 5000 | | 110586 | | | 811-005 | | Mixer Plate Dec. |
| C38 | 20 | | 110404 | | | NP0K-20 | | Fixed Trimmer |
| C39 | 100 | | 110451 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | RF Coupling |
| C40 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | FM RF Cath. Bypass |
| C41 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | FM RF Screen Bypass |
| C42 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | FM RF Plate Dec. |
| C43 | 100 | | 110451 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | RF Coupling |
| C44 | 15 | | 110405 | | | GP1K-15 | MS-415 | Fixed Trimmer |
| C45 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Mixer Cath. Bypass |
| C46 | 1.5 | | 110438 | | | NP0K-1.5 | | Osc. Coupling |
| C47 | 47 | | 110402 | 1468-00005 | 5W5Q5 | GP1K-47 | 1FM-45 | Osc. Grid Cap. |
| C48 | 24 | | 110592 | 1469-000025 | 5R5Q25 | NP0L-25 | MS-425 | Osc. Feedback |
| C49 | 24 | | 110403 | 1469-000025 | 5R5Q25 | NP0L-25 | MS-425 | Osc. Feedback |
| C50 | 1500 | | 110457 | 1467-0015 | 1W5D15 | GP2L-0015 | 1FM-215 | Osc. Plate Bypass |
| C51 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Mixer Plate Dec. |
| C52 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AVC Filter |
| C53 | 100 | | 110451 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | RF Coupling |
| C54 | 270 | 500 | 110453 | 1468-00025 | 5W5T25 | GP2K-270 | 1FM-325 | " " |
| C55 | .0047 | 400 | 110538 | P688-0047 | GT6D5 | GP2M-005 | TM-25 | Isolation |
| C56 | 47 | | 110402 | 1468-00005 | 5W5Q5 | GP1K-47 | 1FM-45 | Osc. Grid Cap. |
| C57 | 5 | | 110413 | 1469-000005 | 5R5V5 | NP0K-5 | MS-55 | Fixed Trimmer |
| C58 | .01 | 400 | 110540 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Decoupling |
| C59 | .01 | 400 | 110540 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | AVC Filter |
| C60 | 2.2 | | 110439 | | | | | IF Coupling |
| C61 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AGC Filter |
| C62 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 1st V. IF Fil. Bypass |
| C63 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 1st V. IF Dec. |
| C64 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Decoupling |
| C65 | 150 | | 110452 | 1468-00015 | 5W5T15 | GP2K-150 | 1FM-315 | IF Coupling |
| C66 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AGC Filter |
| C67 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 2nd V. IF Fil. Byp. |
| C68 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 2nd V. IF Decoupling |
| C69 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Decoupling |
| C70 | 150 | | 110452 | 1468-00015 | 5W5T15 | GP2K-150 | 1FM-315 | IF Coupling |
| C71 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AGC Filter |
| C72 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 3rd V. IF Decoupling |
| C73 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Decoupling |
| C74 | 20 | | 110499 | | MOS.5-42 | NP0K-20 | MS-42 | Fixed Trimmer |
| C75 | 20 | | 110499 | | MOS.5-42 | NP0K-20 | MS-42 | " " |
| C76 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | IF Coupling |
| C77 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 4th V. IF Cath. Bypass |
| C78 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 4th V. IF Fil. Bypass |
| C79 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 4th V. IF Decoupling |
| C80 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Decoupling |
| C81 | 2.2 | | 110439 | | | | | IF Coupling |
| C82 | 33 | | 110440 | 1468-00004 | 5W5Q4 | GP1K-33 | 1FM-44 | " " |
| C83 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | AGC Filter |
| C84 | .001 | 600 | 110549 | P688-001 | GT6D1 | GP2L-001 | TM-21 | " " |
| C85 | 10 | | 110495 | 1468-00001 | 5W5Q1 | GP1K-10 | MS-41 | V. Diode Filter |
| C86 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | V. DET.-AGC Fil. Byp. |
| C87 | .047 | 400 | 110544 | P488-047 | GT4S5 | | TM-15 | Video Coupling |
| C88 | .047 | 400 | 110544 | P488-047 | GT4S5 | | TM-15 | " " |
| C89 | .047 | 400 | 110544 | P488-047 | GT4S5 | | TM-15 | " " |
| C90 | .0047 | 400 | 110553 | P688-0047 | GT6D5 | GP2M-0047 | TM-25 | " " |
| C91 | .47 | 200 | 110533 | P288-47 | GT2P5 | | TC-5 | AGC Filter |
| C92 | .047 | 400 | 110544 | P488-047 | GT4S5 | | TM-15 | " " |
| C93 | 2.2 | | 110439 | | | | | S. IF Coupling |
| C94 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 1st S. IF Decoupling |
| C95 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 2nd S. IF Cath. Byp. |
| C96 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 2nd S. IF Screen Byp. |
| C97 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 2nd S. IF Plate Dec. |
| C98 | 100 | | 110451 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | Diode RF Filter |
| C99 | 100 | | 110451 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | Diode RF Filter |
| C100 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 3rd S. IF Cath. Byp. |
| C101 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 3rd S. IF Screen Byp. |
| C102 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | 3rd S. IF Plate Dec. |
| C103 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | RF Bypass |
| C104 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Ratio Det. Fil. Bypass |
| C105 | .01 | 400 | 110540 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Tuning Ind. Filter |
| C106 | 30 | 500 | 34889 | 1468-00004 | 5W5Q3 | GP1K-33 | 1FM-44 | Diode Load Cap. |
| C107 | 2500 | 500 | 29559 | 1467-0025 | 1W5D25 | GP2M-0025 | | De-emphasis |
| C108 | 400 | 500 | 110216 | 1468-0004 | 5W5T4 | GP2K-390 | 1FM-34 | Tone Compensation |
| C109 | 100 | | 110451 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | " " |
| C110 | .1 | 400 | 110546 | P488-1 | GT4P1 | | TM-1 | AVC Filter |
| C111 | .01 | 400 | 110540 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C112 | .01 | 400 | 110540 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | " " |
| C113 | 100 | | 110451 | 1468-0001 | 5W5T1 | GP1K-100 | 1FM-31 | AF Plate Bypass |
| C114 | .01 | 400 | 110540 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Tone Comp. ♦♦ |
| C115 | .015 | 600 | 110556 | P688-015 | GT6S15 | | | " " |
| C116 | .01 | 400 | 110540 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Audio Coupling |
| C117 | .0047 | 600 | 110553 | P688-0047 | GT6D5 | GP2M-0047 | TM-25 | Audio Coupling Note 1 |
| C118 | .01 | 400 | 110540 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Audio Coupling Note 1 |
| C119 | .01 | 400 | 110540 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | " " " " |
| C120 | .0022 | 600 | 110551 | P688-0022 | GT6D2 | GP2M-0022 | TM-12 | Tone Compensation |
| C121 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | Decoupling |
| C122 | .22 | 400 | 110548 | P488-22 | GT4P25 | | TC-2 | Sync. Coupling |
| C123 | .047 | 400 | 110544 | P488-047 | GT4S5 | | TM-15 | " " |
| C124 | .047 | 400 | 110544 | P488-047 | GT4S5 | | TM-15 | " " |
| C125 | .01 | 400 | 110544 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | " " § |

# PARTS LIST AND DESCRIPTIONS (Continued)

## CAPACITORS (CONT.)

| ITEM No. | RATING CAP. | RATING VOLT | REPLACEMENT DATA STROM. CARL. PART No. | AEROVOX PART No. | CORNELL-DUBILIER PART No. | ERIE PART No. | SPRAGUE PART No. | IDENTIFICATION CODES AND INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| C126 | .22 | 400 | 110668 | | | | | Sync. Coupling Shielded |
| C127 | .0022 | 600 | 110551 | P688-0022 | CT6D2 | GP2M-0022 | TM-22 | Integrator Net. |
| C128 | .0047 | 600 | 110553 | P688-0047 | CT6D5 | GP2M-0047 | TM-25 | " " |
| C129 | .0047 | 600 | 110553 | P688-0047 | CT6D5 | GP2M-0047 | TM-25 | " " |
| C130 | 4700 | 500 | 110273 | 1467-005 | 1D5D5 | GP2M-0047 | 1FM-25 | Vert. Osc. Grid Cap. |
| C131 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 1FM-25 | Vert. Osc. Decoupling |
| C132 | .047 | 400 | 110559 | P488-047 | CT4S5 | | TM-15 | Vert. Discharge |
| C133 | .1 | 600 | 110561 | P688-1 | CT6P1 | | TM-1 | Vert. Sweep Coupling |
| C134 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | RF Bypass |
| C135 | 5000 | | 110586 | 1467-005 | 1D5D5 | 811-005 | 29C1 | " " |
| C136 | 82 | | 110596 | | | | | Hor. Sync. Coupling |
| C137 | .015 | 600 | 110657 | P688-015 | CT6S15 | | | Fixed Trimmer |
| C138 | .0047 | 600 | 110553 | P688-0047 | CT6D5 | GP2M-0047 | TM-25 | AFC Filter |
| C139 | .047 | 400 | 110544 | P488-047 | CT4S5 | | TM-15 | AFC Filter |
| C140 | .047 | 400 | 110544 | P488-047 | CT4S5 | | TM-15 | Hor. AFC Screen Byp. |
| C141 | .0047 | 600 | 110553 | P688-0047 | CT6D5 | GP2M-0047 | TM-25 | AFC Coupling |
| C142 | .015 | 600 | 110657 | P688-015 | CT6S15 | | | Phase Shifter |
| C143 | .0047 | 600 | 110553 | P688-0047 | CT6D5 | GP2M-0047 | TM-25 | Hor. Osc. Grid Cap. |
| C144 | .047 | 400 | 110544 | P488-047 | CT4S5 | | TM-15 | Hor. Osc. Screen Byp. |
| C145 | 400 | 500 | 110216 | 1468-0004 | 5W5T4 | GP2K-390 | 1FM-34 | Differentiator Net. |
| C146 | .01 | 400 | 110540 | P488-01 | GT4S1 | GP2-335-01 | TM-11 | Hor. Sweep Coupling |
| C147 | 330 | 500 | 110234 | | | GP2K-330 | | Hor. Discharge ♦ |
| C148 | .001 | 600 | 110549 | P688-001 | GT6D1 | | TM-21 | Hor. Sweep Coupling ** |
| C149 | .1 | 600 | 110561 | P688-1 | GT6P1 | | TM-1 | Hor. Output Screen Bypass ‡ ‡ |
| C150 | 500 | 10000 | 110595 | | | 410-500 | | HV Filter |
| C151 | 500 | 10000 | 110595 | | | 410-500 | | " " |
| C152 | 500 | 10000 | 110595 | | | 410-500 | | " " |
| C153 | .01 | 600 | 110555 | P688-01 | GT6S1 | | TM-11 | Line Filter |
| C154 | .01 | 600 | 110555 | P688-01 | GT6S1 | | TM-11 | " " |
| C155 | .047 | 400 | 110544 | | | | | Damper Filter ♦ |
| C156 | .15 | 400 | 114547 | | | | | " " |
| C157 | .0022 | 600 | 110551 | | | | | Tone Compensation §§ |
| C158 | .022 | 600 | 110557 | | | | | " " |

* Not used in all models.
† Some models use 75MMF in this application
‡ Some models use 5000MMF in this application.
§ Some models use .047MFD in this application.
♦ Models TS-125H, TS-125L and TS-16PM uses 750MMF in this application. MFGR'S Part No. 110280
** Models TS-125H, TS-125L, and TS-16PM uses .01MFD in this application. MFGR'S Part No. 110555
†† Models TS-125H, TS-125L, and TS-16PM uses 5MFD @ 50 volts in this application. MFGR'S Part No. 111047.
‡‡ Models TS-125H and TS-125L and TS-16PM uses .047MFD in this application. MFGR'S Part No. 110559.
§§ Used only in model TS-125H
♦♦ Models TS-125H uses .022MFD in this application. MFGR'S Part No. 110557
Note 1. Not used in model TS-125H.

## CONTROLS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA STROM.CARL. PART No. | IRC PART No. | CLAROSTAT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| R1A | 1 Meg. | ½ | 145071 | | | Volume control, tapped @ 250KΩ & 500KΩ |
| B | 2.5 Meg. | ½ | | | | Tone control and switch (Dual Concentric) |
| R2 | 2000Ω | ½ | 145075 | | | Contrast control and pilot lamp switch |
| R3 | 1 Meg. | ½ | 145062 | Q11-137 | M-61-S | Vert. hold control |
| R4 | 1000Ω | 25 | 145063 | | PW-25-1000 | Focus control (Wire Wound) |
| R5 | 50Ω | 2 | 145068 | | | Brightness control (Wire Wound) |
| R6 | 30Ω | 2 | 145065 | W-30X15* | 43-30CT | Vert. centering control, tapped @ 15Ω (Wire Wound) |
| R7 | 30Ω | 2 | 145066 | W-30* | 43-30 | Horiz. centering control (Wire Wound) |
| R8 | 2.5 Meg. | ½ | 145067 | Q11-239 | | Vert. size control |
| R9 | 4000Ω | 2 | 145064 | W-4000* | 43-4000 | Vert. linearity control (Wire Wound) |
| R10A | 50KΩ | ½ | 145069 | Q11-133 | 15/16"S-50-S | Horiz. drive control |
| B | Shaft | | Not Req. | SQ | Not Req. | Attach to R10A Per Instructions |

* File 1/16" slot in shaft.

## RESISTORS

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA STROM. CARL. PART No. | IRC PART No. | IDENTIFICATION CODES ALL RESISTORS ARE ± 20% UNLESS OTHERWISE STATED. |
|---|---|---|---|---|---|
| R11 | 10KΩ | ½ | 149107 | BTS-10K | Ant. Shunt |
| R12 | 10KΩ | ½ | 149107 | BTS-10K | " " |
| R13 | 2200Ω | ½ | 149103 | BTS-2200 | RF Grid |
| R14 | 1000Ω | ½ | 149101 | BTS-1000 | RF Plate Decoupling |
| R15 | 1000Ω | ½ | 149101 | BTS-1000 | Bias Network |
| R16 | 4700Ω | ½ | 149105 | | Conv. Plate Coil Shunt |
| R17 | 150Ω | ½ | 149096 | | Conv. Plate Decoupling |
| R18 | 8200Ω | ½ | 28163 | BTS-8200 | Osc. Grid 10% |
| R19 | 4700Ω | ½ | 149105 | | Osc. Plate Decoupling See Note 1 |
| R20 | 150Ω | ½ | 149096 | | Decoupling Network |
| R21 | 150Ω | ½ | 149096 | | " |
| R22 | 560Ω | ½ | 28155 | | RF Grid 10% |
| R23 | 1000Ω | ½ | 149101 | BTS-1000 | RF Plate Decoupling |
| R24 | 1000Ω | ½ | 149101 | BTS-1000 | AGC Network |
| R25 | 150Ω | ½ | 149096 | | Decoupling Network |
| R26 | 100KΩ | ½ | 149113 | | Series Test Jack |
| R27 | 1000Ω | ½ | 149101 | BTS-1000 | Bias Network |
| R28 | 100KΩ | ½ | 149113 | | Series Test Jack |
| R29 | 10KΩ | ½ | 149107 | BTS-10K | Osc. Grid |
| R30 | 4700Ω | ½ | 149105 | | Osc. Plate Decoupling |
| R31 | 150Ω | ½ | 149096 | | Decoupling Network |
| R32 | 2.2 Meg. | ½ | 28195 | BTS-2.2 Meg. | AVC Network 10% |
| R33 | 1 Meg. | ½ | 149119 | BTS-1 Meg. | FM RF Grid 10% |
| R34 | 68Ω | ½ | 28144 | | FM RF Cathode 10% |
| R35 | 22KΩ | ½ | 149109 | BTS-22K | FM RF Screen Decoupling |
| R36 | 1000Ω | ½ | 149101 | BTS-1000 | FM RF Plate Decoupling |
| R37 | 2200Ω | ½ | 28162 | BTS-2200 | FM Conv. Cathode |
| R38 | 1000Ω | ½ | 149101 | BTS-1000 | FM Conv. Plate Decoupling |
| R39 | 10KΩ | ½ | 149107 | BTS-10K | FM Osc. Grid |
| R40 | 1000Ω | ½ | 149101 | BTS-1000 | FM Osc. Plate Decoupling |
| R41 | 1 Meg. | ½ | 149119 | BTS-1 Meg. | AVC Network 10% |
| R42 | 1 Meg. | ½ | 149119 | BTS-1 Meg. | AM RF Grid 10% |
| R43 | 68Ω | ½ | 28144 | BW-½-68 | AM RF Cathode 10% |
| R44 | 5600Ω | 1 | 149184 | BTA-5600 | AM RF Plate Decoupling 10% |

## RESISTORS (CONT.)

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA STROMBERG-CARLSON PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R45 | 10KΩ | ½ | 149107 | BTS-10K | AVC Network |
| R46 | 22KΩ | ½ | 149109 | BTS-22K | AM Osc. Grid |
| R47 | 12KΩ | 2 | 149055 | BT-2-12K | Screen Decoupling 10% |
| R48 | 10KΩ | ½ | 28170 | | 1st Video IF Grid 10% |
| R49 | 1000Ω | ½ | 149101 | BTS-1000 | 1st Video IF Decoupling |
| R50 | 1000Ω | ½ | 149101 | BTS-1000 | AGC Network |
| R51 | 8200Ω | ½ | 28169 | | 2nd Video IF Grid 10% |
| R52 | 1000Ω | ½ | 149101 | BTS-1000 | 2nd Video IF Decoupling |
| R53 | 1000Ω | ½ | 149101 | BTS-1000 | AGC Network |
| R54 | 10KΩ | ½ | 28170 | | 3rd Video IF Grid 10% |
| R55 | 82Ω | ½ | 28145 | | 3rd Video IF Cathode 10% |
| R56 | 1000Ω | ½ | 149101 | BTS-1000 | 3rd Video IF Decoupling |
| R57 | 150Ω | ½ | 149096 | | Decoupling Network |
| R58 | 150Ω | ½ | 149096 | | " |
| R59 | 150Ω | ½ | 149096 | | " |
| R60 | 100KΩ | ½ | 149113 | BTS-100K | Voltage Divider |
| R61 | 1000Ω | ½ | 149101 | BTS-1000 | AGC Network |
| R62 | 2700Ω | ½ | 28163 | | 4th Video IF Grid 10% |
| R63 | 10Ω | ½ | 149095 | | 4th Video IF Cathode |
| R64 | 1000Ω | ½ | 149101 | BTS-1000 | 4th Video IF Decoupling |
| R65 | 10KΩ | ½ | 149107 | BTS-10K | AGC Diode Load |
| R66 | 82KΩ | ½ | 28180 | BTS-82K | AGC Diode Load |
| R67 | 3900Ω | ½ | 28165 | BTS-3900 | Video Det. Diode Load |
| R68 | 470KΩ | ½ | 149117 | BTS-470K | Video Amp. Grid |
| R69 | 3300Ω | ½ | 28164 | BTS-3300 | Video Amp. Plate |
| R70 | 5.6Ω | 1 | 149271 | BW-1-5.6 | Bias Network (Wire Wound) |
| R71 | 5.6Ω | 1 | 149271 | BW-1-5.6 | " " " |
| R72 | 6800Ω | ½ | 149106 | BTS-6800 | Filter |
| R73 | 820KΩ | ½ | 28190 | BTS-820K | Bias Network 10% |
| R74 | 1.2 Meg. | ½ | 28192 | BTS-1.2 Meg. | Video Output Grid 10% |
| R75 | 3300Ω | 1 | 149181 | BTA-3300 | Video Output Plate 10% |
| R76 | 47KΩ | ½ | 149111 | BTS-47K | Phase Correction |
| R77 | 100KΩ | ½ | 149113 | BTS-100K | Picture Tube Grid |
| R78 | 1.5 Meg. | ½ | 149120 | BTS-1.5 Meg. | Voltage Divider |
| R79 | 100KΩ | 1 | 149150 | BTA-100K | " " 10% |
| R80 | 22KΩ | ½ | 149109 | BTS-22K | AGC Network |
| R81 | 150KΩ | ½ | 149115 | BTS-220K | Voltage Divider |
| R82 | 100KΩ | ½ | 149113 | BTS-100K | AGC Network |
| R83 | 100KΩ | ½ | 149113 | BTS-100K | AGC Amp. Plate |
| R84 | 4.7 Meg. | ½ | 149123 | BTS-4.7 Meg. | Voltage Divider |
| R85 | 220Ω | ½ | 149097 | BW-½-220 | Voltage Divider |
| R86 | 22KΩ | ½ | 149109 | BTS-22K | " " |
| R87 | 470KΩ | ½ | 149117 | BTS-470K | AGC Filter |
| R88 | 1000Ω | ½ | 149101 | BTS-1000 | AGC Cathode |
| R89 | 10 Meg. | ½ | 149125 | BTS-10 Meg. | Voltage Divider |
| R90 | 10KΩ | ½ | 149107 | BTS-10K | " 10% |
| R91 | 180Ω | ½ | 28149 | | 1st Sound IF Cathode 10% |
| R92 | 1000Ω | ½ | 149101 | BTS-1000 | 1st Sound IF Decoupling |
| R93 | 68Ω | ½ | 149094 | | 2nd Sound IF Cathode |
| R94 | 1000Ω | ½ | 149101 | BTS-1000 | 2nd Sound IF Plate Decoupling |
| R95 | 3300Ω | ½ | 149104 | | 2nd Sound IF Screen Decoupling |
| R96 | 68Ω | ½ | 149094 | | 3rd Sound IF Cathode |
| R97 | 1000Ω | ½ | 149101 | BTS-1000 | 3rd Sound IF Plate Decoupling |
| R98 | 6800Ω | ½ | 149106 | | 3rd Sound IF Screen Decoupling |
| R99 | 100KΩ | ½ | 149113 | BTS-100K | Diode Filter |
| R100 | 560KΩ | ½ | 28188 | BTS-560K | Diode Load |
| R101 | 1 Meg. | ½ | 149119 | BTS-1 Meg. | AVC Network |
| R102 | 470KΩ | ½ | 149117 | BTS-470K | Tone Compensation |
| R103 | 470KΩ | ½ | 149117 | BTS-470K | " " |
| R104 | 470KΩ | ½ | 149117 | BTS-470K | " " |
| R105 | 220Ω | ½ | 28150 | BW-½-220 | Balancing |
| R106 | 27KΩ | ½ | 28174 | BTS-27K | De-emphasis 10% |
| R107 | 10KΩ | ½ | 28170 | BTS-10K | Ratio Det. Diode Load 10% |
| R108 | 10KΩ | ½ | 28170 | BTS-10K | " " " 10% |
| R109 | 470KΩ | ½ | 149117 | BTS-470K | AVC Network |
| R110 | 1 Meg. | ½ | 149119 | BTS-1 Meg. | Tuning Eye Plate (In socket) 10% |
| R111 | 68KΩ | ½ | 149112 | BTS-68K | Tone Compensation See Note 13 |
| R112 | 6800Ω | ½ | 149106 | BTS-6800 | Tone Compensation See Note 14 |
| R113 | 4.7 Meg. | ½ | 149123 | BTS-4.7 Meg. | 1st AF Grid |
| R114 | 220KΩ | ½ | 149115 | BTS-220K | 1st AF Plate See Note 15 |
| R115 | 220KΩ | ½ | 149115 | BTS-220K | 1st AF Plate See Note 16 |
| R116 | 100KΩ | ½ | 149113 | BTS-100K | Tone Compensation See Note 16 |
| R117 | 15KΩ | ½ | 149108 | BTS-15K | Tone Compensation See Note 16 |
| R118 | 2700Ω | ½ | 28163 | BTS-2700 | 2nd AF Cathode See Note 16 10% |
| R119 | 390KΩ | ½ | 28186 | BTS-390K | 2nd AF Plate See Note 16 10% |
| R120 | 1 Meg. | ½ | 149119 | BTS-1 Meg. | Phase Inv. Grid See Note 16 10% |
| R121 | 390KΩ | ½ | 28186 | BTS-390K | Phase Inv. Plate See Note 16 10% |
| R122 | 470KΩ | ½ | 28187 | BTS-470K | Output Grid 10% |
| R123 | 15KΩ | ½ | 28171 | BTS-15K | Output Grid See Note 2 and 16 10% |
| R124 | 470KΩ | ½ | 149117 | BTS-470K | Output Grid See Note 16 |
| R125 | 330Ω | 2 | 149020 | BW-2-330 | Output Cathode See Note 17 |
| R126 | 47KΩ | ½ | 149111 | BTS-47K | Filter |
| R127 | 10KΩ | 1 | 149144 | BTA-10K | Feedback See Note 16 |
| R128 | 82KΩ | ½ | 28180 | BTS-82K | 1st Sync. Amp. Grid |
| R129 | 4700Ω | ½ | 149105 | BTS-4700 | 1st Sync. Amp. Cathode 10% |
| R130 | 22KΩ | ½ | 149109 | BTS-22K | 1st Sync. Amp. Plate 10% |
| R131 | 22KΩ | ½ | 149109 | BTS-22K | Voltage Divider |
| R132 | 13KΩ | 2 | 149055 | BT-2-12K-5% | Voltage Dropping 5% |
| R133 | 13KΩ | 2 | 149055 | BT-2-12K-5% | " " 5% |
| R134 | 560KΩ | ½ | 28188 | BTS-560K | Sync. Sep. Cathode 10% |
| R135 | 27KΩ | ½ | 28174 | BTS-27K | Sync. Sep. Load 10% |
| R136 | 100KΩ | ½ | 149113 | BTS-100K | 2nd Sync. Amp. Grid See Note 21 |
| R137 | 27KΩ | ½ | 28174 | BTS-27K | 2nd Sync. Amp. Plate |
| R138 | 4700Ω | ½ | 149105 | BTS-4700 | Filter 10% |
| R139 | 22KΩ | ½ | 149109 | BTS-22K | Isolation 10% |
| R140 | 470KΩ | ½ | 149117 | BTS-470K | 3rd Sync. Amp. Grid |
| R141 | 27KΩ | ½ | 28174 | BTS-27K | 3rd Sync. Amp. Plate |
| R142 | 4700Ω | ½ | 149105 | BTS-4700 | ABL Diode Load |
| R143 | 2200Ω | ½ | 149103 | BTS-2200 | ABL Diode Load |
| R144 | 4700Ω | ½ | 149105 | BTS-4700 | Voltage Divider |
| R145 | 47KΩ | ½ | 149111 | BTS-47K | Integrator |
| R146 | 4700Ω | ½ | 149105 | BTS-4700 | " |
| R147 | 4700Ω | ½ | 149105 | BTS-4700 | " |
| R148 | 1.5 Meg. | ½ | 149120 | BTS-1.5 Meg. | Vert. Osc. Grid |
| R149 | 220KΩ | ½ | 149115 | BTS-220K | Voltage Divider |
| R150 | 2.2 Meg. | ½ | 149121 | BTS-2.2 Meg. | " " |
| R151 | 100KΩ | ½ | 149113 | BTS-100K | " " |
| R152 | 2.2 Meg. | ½ | 149121 | BTS-2.2 Meg. | Vert. Output Grid |
| R153 | 1800Ω | 1 | 149179 | BTA-1800 | Vert. Output Cathode 10% |

## RESISTORS (CONT.)

| ITEM No. | RATING RESISTANCE | RATING WATTS | REPLACEMENT DATA STROMBERG-CARLSON PART No. | IRC PART No. | IDENTIFICATION CODES |
|---|---|---|---|---|---|
| R154 | 62000Ω | ½ | 28169 | BTS-8200 | Vert. Peaking |
| R155 | 1000Ω | ½ | 149101 | BTS-1000 | Filter |
| R156 | 50Ω | 10 | 149218 | AB-500 | Focus Coil Shunt (Wire Wound) |
| R157 | 100Ω | 5 | 149274 | AB-100 | Bias Network (Wire Wound) |
| R158 | 1 Meg. | ½ | 149119 | BTS-1 Meg. | Horiz. Sync. Disc. Load |
| R159 | 470KΩ | ½ | 149117 | BTS-470K | Horiz. Sync. Disc. Load |
| R160 | 470KΩ | ½ | 149117 | BTS-470K | " " " |
| R161 | 470KΩ | ½ | 149117 | BTS-470K | Horiz. AFC Filter 10% |
| R162 | 560Ω | ½ | 28155 | BTS-560 | Horiz. AFC Grid |
| R163 | 10Ω | ½ | 149089 | BW-½-10 | Phase Shifter |
| R164 | 22KΩ | 2 | 149084 | BT-2-22K | Phase Shifter Plate |
| R165 | 39KΩ | 1 | 149189 | BTA-39K | Phase Shifter Screen 10% |
| R166 | 27KΩ | 1 | 34578 | BTA-27K | Voltage Divider 10% |
| R167 | 27KΩ | ½ | 28174 | BTS-27K | Horiz. Osc. Grid 10% |
| R168 | 5000Ω | 5 | 149312 | AB-5000 | Horiz. Osc. Plate (Wire Wound) |
| R169 | 10KΩ | 1 | 149144 | BTA-10K | Horiz. Osc. Screen |
| R170 | 1300Ω | 25 | 149289 | | Filter (Wire Wound) |
| R171 | 6800Ω | ½ | 149106 | BTS-6800 | Differentiator |
| R172 | 220KΩ | ½ | 149115 | BTS-220K | Horiz. Discharge Grid |
| R173 | 330KΩ | ½ | 149116 | BTS-330K | Horiz. Discharge Plate See Notes 5 and 12. |
| R174 | 27KΩ | ½ | 28174 | BTS-27K | Acc. Anode Load |
| R175 | 100Ω | ½ | 149095 | | Parasitic Supp. See Note 9 |
| R176 | 47Ω | ½ | 149093 | | " " " " " |
| R177 | 100Ω | ½ | 149095 | | " " " " " |
| R178 | 12KΩ | 2 | 149335 | BT-2-12K | Horiz. Output Screen See Note 19 10% |
| R179 | 10Ω | ½ | 149095 | | Parasitic Supp. |
| R180 | 68KΩ | ½ | 149112 | BTS-68K | Feedback See Notes 5 and 20. 10% |
| R181 | 470KΩ | ½ | 149117 | BTS-470K - | Horiz. Output Grid |
| R182 | 68Ω | 2 | 149069 | BW-2-68 | Horiz. Output Cathode See Note 5 10% |
| R183 | 10Ω | ½ | 149095 | | Parasitic Supp. See Note 10 |
| R184 | 12KΩ | 2 | 149335 | BT-2-12K | Horiz. Output Screen See Note 6 |
| R185 | 56KΩ | ½ | 28178 | BTS-56K | Filter 10% |
| R186 | 50000Ω | 25 | 149318 | EP-5000 | Damper Filter (Wire Wound) See Note 5 |
| R187 | 3.3Ω | 1 | 149314 | | HV Rect. Filament See Note 5 10% |
| R188 | 3.3Ω | 1 | 149314 | | " " " See Note 5 10% |
| R189 | 2.2 Meg. | 2 | 149324 | | HV Filter Type DCH |
| R190 | 100KΩ | 1 | 149150 | BTA-100K | Bleeder |
| R191 | 100KΩ | 1 | 149150 | BTA-100K | " |
| R192 | 200Ω | 15 | 149288 | DG-2000 | Filter (Wire Wound) |
| R193 | 1000Ω | ½ | 149101 | BTS-1000 | Bias Network |
| R194 | 5.6Ω | 1 | 149271 | BW-1-5.6 | Bias Network (Wire Wound) 10% |
| R195 | 5.6Ω | 1 | 149271 | BW-1-5.6 | " " " 10% |
| R196 | 6800Ω | ½ | 28168 | BTS-6800 | Feedback See Note 3 |
| R197 | 330KΩ | ½ | 149116 | BTS-330K | Horiz. Output Grid See Note 4 |
| R198 | 180KΩ | 1 | 149195 | BTA-180K | Horiz. Output Screen See Note 4 |
| R199 | 27KΩ | 3 | 149339 | | " " " " " |
| R200 | 3900Ω | ½ | 28165 | BTS-3900 | Feedback See Note 8 |
| R201 | 4.7Ω | 1 | 149282 | | HV Rect. Filament See Note 11 |
| R202 | 4.7Ω | 1 | 149282 | | HV Rect. Filament See Note 11 |
| R203 | 1000Ω | ½ | 149101 | | Parasitic Supp. See Note 18 |
| R204 | 47KΩ | ½ | 149111 | BTS-47K | AGC Network |

Note 1. Not used in all models.
Note 2. Some models use 12KΩ resistor in this application.
Note 3. Used only in model TS-16PM and late production.
Note 4. Used only in model TS-16PM.
Note 5. Used only in model TS-15 and TS-16.
Note 6. Not used in model TS-16PM and late production.
Note 7. Not used in model TS-16PM and TS-125H, and TS-125L series.
Note 8. Used only in model TS-125H and TS-125L series.
Note 9. Not used on TS-125H, TS-125L series, and late productions
Note 10. Not used on TS-125H, and TS-125L series.
Note 11. Used only on TS-125H, TS-125L series and late productions.
Note 12. Late production models use 39KΩ resistor in this application.
Note 13. Model TS-125H uses 56KΩ resistor in this application.
Note 14. Model TS-125H uses 10KΩ resistor in this application.
Note 15. Model TS-125H uses 390KΩ resistor in this application.
Note 16. Not used in model TS-125H.
Note 17. Model TS-125H uses 270Ω 1W resistor in this application.
Note 18. Used only in model TS-125H.
Note 19. Used only in model TS-16L-1M and late production models.
Note 20. Some models use 56KΩ resistor in this application.
Note 21. Some models use 1 Meg. resistor in this application.

## TRANSFORMER (POWER)

| ITEM No. | RATING PRI. | RATING SEC. 1 | RATING SEC. 2 | RATING SEC. 3 | REPLACEMENT DATA STROMBERG-CARLSON PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. |
|---|---|---|---|---|---|---|---|---|
| T1 | 117VAC @ 3.1A | 820VCT @ .34A | 5VAC @ 6A | 5VAC @ 2A | 161417 | | | |
| | | SEC. 4 | SEC. 5 | | | | | |
| | | 12.6VCT @ 5.5A | 6.3VAC @ 2.5A | | | | | |

## TRANSFORMER (SWEEP CIRCUITS)

| ITEM No. | RATING DC RESISTANCE SEC. | RATING DC RESISTANCE PRI. | REPLACEMENT DATA STROM. CARL. PART No. | STANCOR PART No. | CHICAGO PART No. | MERIT PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| T2 | 42Ω Tap. @ 10Ω | 492Tap @ 21Ω | 114371 | | | | Hor. Osc. Trans. |
| T3 | 93Ω | 170Ω | 161010 | A-8111 ▲ | TS0-1 ▲ | A-3000 ▲ | Vert.Block Osc. Trans |
| T4A | SEC. 1 | 220Ω Tap @ 17Ω | 161023 ** | | | | Hor.Output Trans. |
| | 10.6Ω Tap. @ 4Ω | | | | | | |
| | SEC.2&3 0Ω | | | | | | |
| B | | | 161021 †† | | | | |
| C | | | 161018 ‡‡ | | | | |
| T5 | 7.2Ω | 580Ω | 161011 | A-8115 | TS0-1 | A-3035 | Vert.Output Trans. |
| T6A | 1Ω | | 114644 | DY-1 | | | Hor. Deflection Coil |
| B | 6Ω | | | | | | Vert.Deflection Coil |

# PARTS LIST AND DESCRIPTIONS (Continued)

## TRANSFORMER (SWEEP CIRCUITS)

| ITEM No. | RATING DC RESISTANCE SEC. | RATING DC RESISTANCE PRI. | REPLACEMENT DATA STROM. CARLS. PART No. | REPLACEMENT DATA STANCOR PART No. | REPLACEMENT DATA THORDARSON PART No. | REPLACEMENT DATA MERIT PART No. | NOTES |
|---|---|---|---|---|---|---|---|
| T7A | 590Ω | | 114636 | | | | Focus coil |
| B | | | 114648 ## | | | | Focus coil |

▲ Drill one new mounting hole.
** Used in TS-15-16 models.
†† Used in TS-16PM models.
‡‡ Used in TS-125H, TS-125L models.
## Used in TS-15 models.

## TRANSFORMER (AUDIO OUTPUT)

| ITEM No. | RATING IMPEDANCE PRI. | RATING IMPEDANCE SEC. | RATING DC RES. PRI. | RATING DC RES. SEC. | REPLACEMENT DATA STROMBERG-CARLSON PART No. | REPLACEMENT DATA STANCOR PART No. | REPLACEMENT DATA CHICAGO PART No. | REPLACEMENT DATA MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|---|
| T8A | 10KΩ CT | 6.4Ω | 570Ω CT | .35Ω | 161013 | A-3852 | RO-110 | A-2936 | |
| B | | | | | 161239 §§ | | | | §§ Used in TS-125H models |

## SPEAKER

| ITEM No. | RATINGS | | REPLACEMENT DATA STROMBERG-CARLSON PART No. | REPLACEMENT DATA JENSEN PART No. | REPLACEMENT DATA QUAM PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|
| | FIELD | V. C. IMP. | | ST-103 | | |
| SP1A | PM | 6.4Ω | 155075 | MOD.P12-R | 12A6 | |
| B | | | 155074 | | | |
| C | | | 155085 | | | |
| | CONE DIA. | V. C. DIA. | | | | |
| SP2A | 11 3/4" | 1" | | | | |
| B | | | | | | |
| C | | | | | | |

## FILTER CHOKE

| ITEM No. | RATINGS TOTAL DIRECT CURRENT | RATINGS D. C. RESISTANCE | RATINGS INDUCTANCE (0 CURRENT 1000 ~) | REPLACEMENT DATA STROMBERG-CARLSON PART No. | REPLACEMENT DATA STANCOR PART No. | REPLACEMENT DATA CHICAGO PART No. | REPLACEMENT DATA MERIT PART No. | INSTALLATION NOTES |
|---|---|---|---|---|---|---|---|---|
| L1 | .340A | 83Ω | 4.5 Henry | 161017 | C-2326 # | TR-3300 # | C-3196§ | # Drill new mounting holes. § Mount on chassis. |

## COILS (RF-IF)

| ITEM No. | USE | DC RES. PRI. | DC RES. SEC. | REPLACEMENT DATA CARLSON PART No. | REPLACEMENT DATA MEISSNER PART No. | NOTES |
|---|---|---|---|---|---|---|
| L2 | Ant. Coil | 0Ω | | 114646 | | High Band |
| L3 | RF Plate | 0Ω | | 114066 | | High Band |
| L4 | Mixer Grid | 0Ω | | 114066 | | High Band |
| L5 | Osc. | 0Ω | | 114066 | | High Band |
| L6 | RF Choke | 0Ω | | 114060 | | |
| L7 | Antenna | 0Ω | | 114057 | | Low Band |
| L8 | RF Plate | 0Ω | | 114065 | | Low Band |
| L9 | Coupling | 0Ω | | 114642 | | Low Band |
| L10 | Mixer Grid | 0Ω | | 114065 | | Low Band |
| L11 | Osc. | 0Ω | | 114065 | | Low Band |
| L12 | Mixer Plate | 0Ω | | 114061 | | |
| L13 | RF Choke | 0Ω | | 114621 | | |
| L14 | AM Loop Ant. | 1Ω | | 139031 | | |
| L15 | FM Ant. | 0Ω | | 114053 | | |
| L16 | FM RF Choke | 0Ω | | 114633 | | |
| L17 | FM Mixer Grid | 0Ω | | 114054 | | |
| L18 | FM Osc. | 0Ω | | 114059 | | |
| L19 | FM Osc. Cath Choke | 0Ω | | 114620 | | |
| L20 | AM RF | .5Ω | 1.5Ω | | | |
| L21 | AM Osc. | 6Ω | | 114051 | | |
| L22 | Fil. Choke | 0Ω | | 114621 | | |
| L23 | 1st Video IF | .8Ω | | 114372 | | |
| L24 | 2nd Video IF | .8Ω | | 114372 | | |
| L25 | 3rd Video IF | .8Ω | | 114368 | | |
| L26 | 4th Video IF | .5Ω | | 114379 | | |
| L27 | 21.9MC Trap | .1Ω | | 114351 | | |
| L28 | 27.9MC Trap | .1Ω | | 114373 | | |
| L29 | 5th Video IF | .8Ω | | 114344 | | |
| L30 | 6th Video IF | .1Ω | .9Ω | 114369 | | |
| L31 | Peaking | 5Ω | | 114637 | | 65 Microhenries. Wound on 5.6KΩ resistor. |
| L32 | Peaking | 9.2Ω | | 114638 | | 150 Microhenries. Wound on 15KΩ resistor. |
| L33 | Peaking | 8Ω | | 114639 | | 125 Microhenries. Wound on 1 Meg. resistor. |
| L34 | Peaking | 7.5Ω | | 114640 | | 190 Microhenries. Wound on 18KΩ resistor. |
| L35 | Peaking | 9.2Ω | | 114641 | | 190 Microhenries. Wound on 2.2 Meg. res. |
| L36 | 1st FM IF | .1Ω | .1Ω | 114367 | | |
| L37 | 1st AM IF | 15Ω | 15Ω | 114364 | | |
| L38 | 1st Sound IF | .1Ω | .1Ω | 114367 | | |
| L39 | 2nd AM IF | 9.5Ω | 9.5Ω | 114337 | | |
| L40 | 2nd Sound IF | .1Ω | .1Ω | 114367 | | |
| L41 | Ratio Det. Trans. | .1Ω | 0Ω | 114370 | | |
| L42 | Hor. Size | .1Ω | | | | |
| L43 | Hor. Linearity | 39Ω | | | | |

# PARTS LIST AND DESCRIPTIONS (Continued)

## DIAL LIGHTS

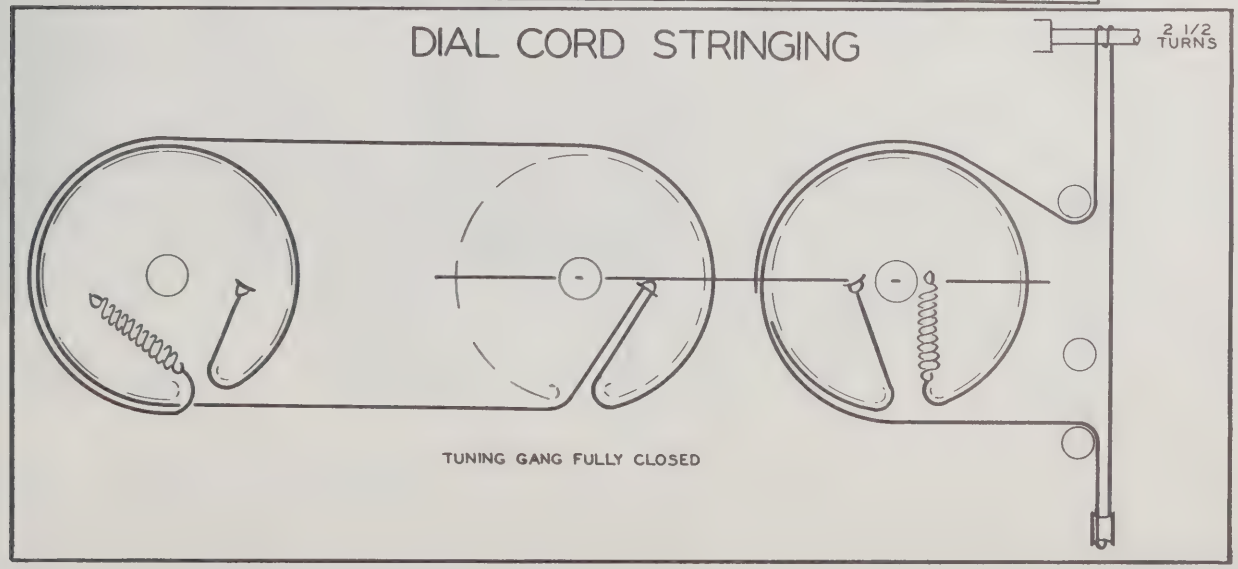
| ITEM No. | BASE TYPE | VOLTS | AMPS. | BEAD COLOR | REPLACEMENT DATA STROMBERG-CARLSON PART No. | | NOTES |
|---|---|---|---|---|---|---|---|
| M1 | Bayonet | 6-8V | .25 | Blue | 29956 | | Type #44 |
| M2 | Bayonet | 6-8V | .25 | Blue | 29956 | | Type #44 |

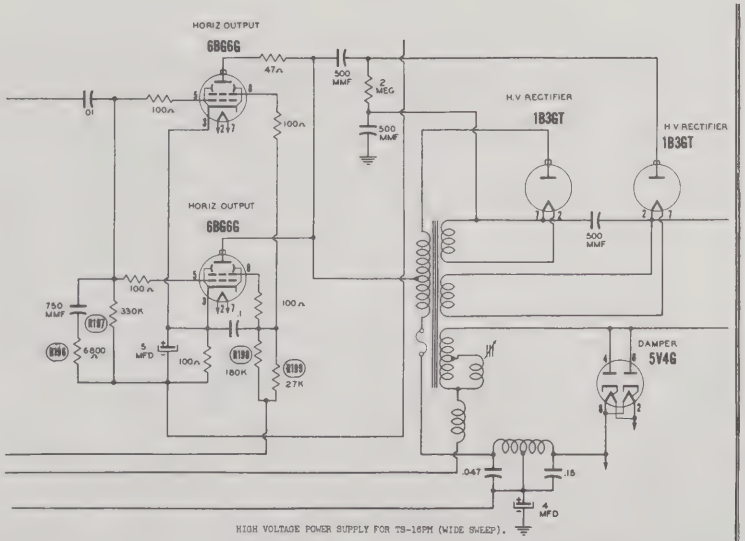
## MISCELLANEOUS

| ITEM No. | PART NAME | STROMBERG-CARLSON PART No. | NOTES |
|---|---|---|---|
| M3 | RF Tuner | | |
| M4 | Band Switch | 158033 | |
| M5 | Fuse | 26819 | Type SFE 5A |
| M6 | Fuse | 128003 | Type AGC .25A |
| M7A | Ion Trap | 114635 | PM Used on 16AP4 and 12LP4 |
| B | Ion Trap | 114645 | PM Used on 12QP4 |
| M8 | Tuning Cap. | | 25-535MMF, 19-402MMF,20-252MMF (W/T) |
| | Cabinet | 108130 | Models TS-125-DL1 (Ch. 112060), TS-125-EL1 (Ch. 112059), TS-125-SL1 (Ch. 112058). |
| | Cabinet | 108139 | Models TS-125-DM5M (Ch. 112075), TS-125-EM5M (Ch. 112076), TS-125-SM5M (Ch. 112077). |
| | Cabinet | 108133 | Models TS-125-EH1M (Ch.112074), TS-125-DH1M (Ch. 112073), TS-125-SH1M (Ch. 112072). |
| | Cabinet | 108124 | Models TS-15-L1A (Ch.112049), TS-16-L1A (Ch.112047). |
| | Cabinet | 108123 | Models TS-15-L1M (Ch.112049), TS-16-L1M (Ch.112047). |
| | Cabinet | 108122 | Models TS-15-M1A (Ch.112049), TS-16-M1A (Ch.112047). |
| | Cabinet | 108121 | Models TS-15-M1M (Ch. 112049), TS-16-M1M (Ch.112047). |
| | Cabinet | 108138 | Model TS-16-PM (Ch.112081). |
| | Safety Glass | 138025 | Models TS-125-L1M, & TS-125-H1M. |
| | Safety Glass | 138021 | Models TS-15-M1M, TS-15-M1A, TS-15- L1M, TS-15-L1A, TS-16-M1M, TS-16-M1A, TS-16-L1M, TS-16-L1A. |
| | Safety Glass | 138027 | Model TS-125-M5M. |
| | Safety Glass | 138026 | Model TS-16-PM |
| | Knob | 134083 | Tuning: Models TS-125-H1M, TS-16-PM |
| | Knob | 134081 | Concentric: Models TS-125-H1M, TS-16-PM. |
| | Knob | 134084 | Indicator: Models TS-125-H1M, TS-16-PM. |
| | Knob | 134072 | Tuning: Models TS-125-L1M, TS-15-M1M, TS-15-M1A, TS-15-L1M, TS-15-L1A, TS-16-M1M, TS-16-M1A, TS-16-L1M, TS-16-L1A. |
| | Knob | 134073 | Concentric: Models TS-125-L1M, TS-15-M1M, TS-15-M1A, TS-15-L1M, TS-15-L1A, TS-16-L1M, TS-16-M1M, TS-16-L1A, TS-16-M1A. |
| | Knob | 134076 | Indicator: Models TS-125-L1M, TS-15-M1M, TS-15-M1A, TS-15-L1M, TS-15-L1A, TS-16-M1M, TS-16-M1A, TS-16-L1M, TS-16-L1A. |
| | Knob | 134096 | Tuning: Model TS-125-M5M. |
| | Knob | 134094 | Concentric: Model TS-125-M5M. |
| | Knob | 134093 | Indicator: Model TS-125-M5M. |
| | Back Panel Assy. | 101113 | Model TS-125-H1M. |
| | Back Panel Assy. | 101106 | Model TS-125-L1M. |
| | Back Panel Assy. | 101099 | Model TS-15-M1M, TS-15-M1A, TS-15-L1M,TS-15-L1A, TS-16-M1M, TS-16-M1A, TS-16-L1M, TS-16-L1A. |
| | Back Panel Assy. | 101118 | Model TS-125-M5M. |
| | Back Panel Assy. | 101116 | Model TS-16-PM |

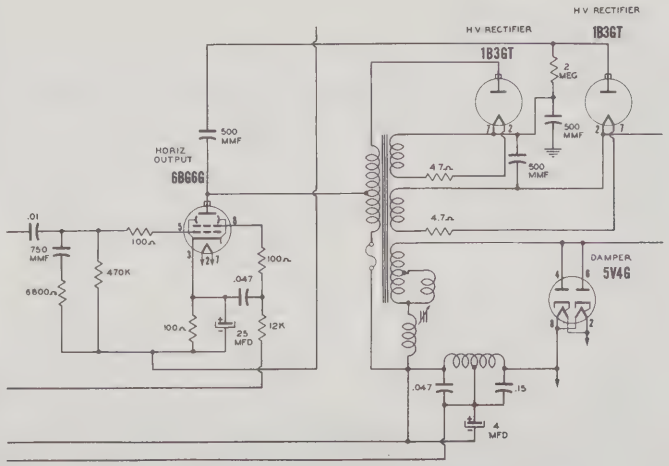


## DIAL CORD STRINGING

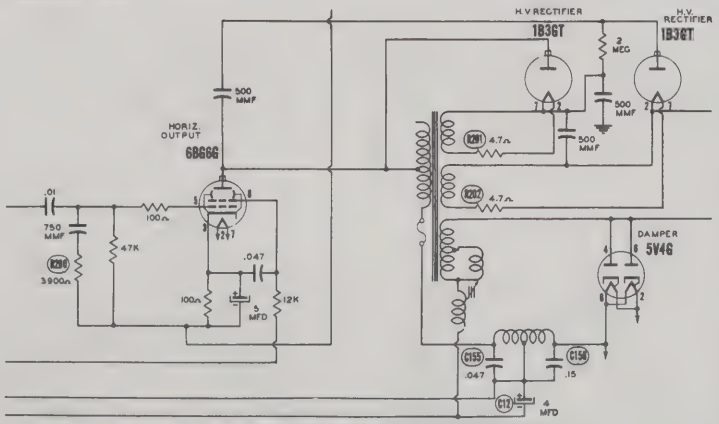




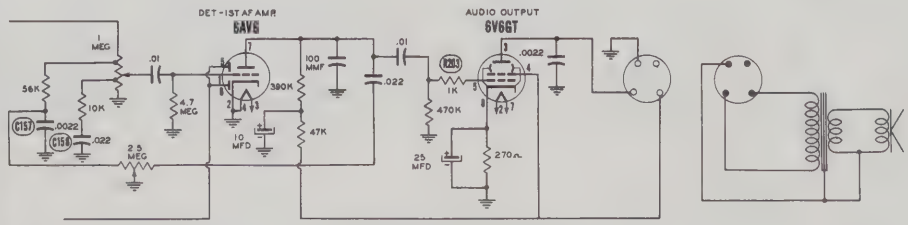

HIGH VOLTAGE POWER SUPPLY FOR TS-16PM (WIDE SWEEP).



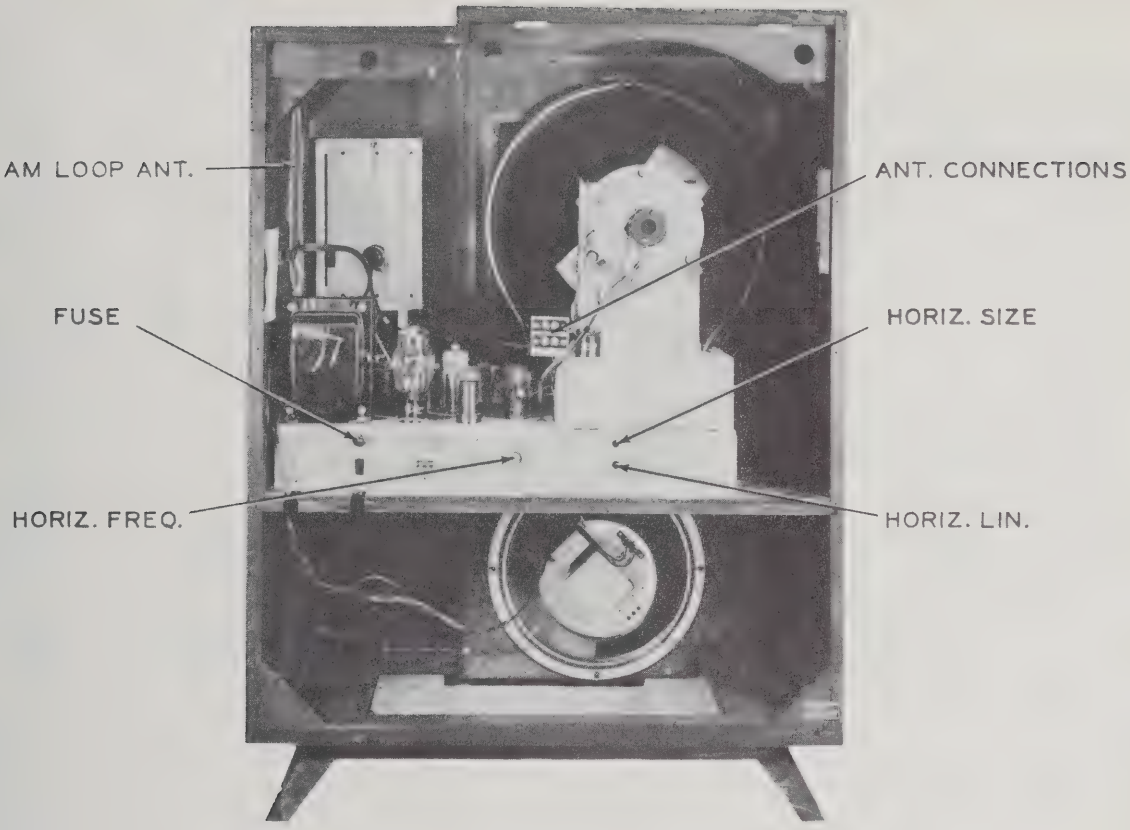

HIGH VOLTAGE POWER SUPPLY FOR ALL LATE PRODUCTION 15" AND 16" MODELS.




HIGH VOLTAGE POWER SUPPLY FOR TS-125H AND TS-125L SERIES.




AUDIO SYSTEM FOR TS-125H SERIES ONLY.




CABINET-REAR VIEW

## DISASSEMBLY INSTRUCTIONS

1. Remove 4 push-on type knobs from controls.
2. Remove speaker plug from TV chassis. (Directly in front of power transformer).
3. Remove 8 screws holding chassis to cabinet.
4. Remove chassis.
5. Remove four 5/16" hex head bolts holding speaker to cabinet.
6. Remove speaker.

## IDENTIFICATION TABLE

| Model | Chassis | Cabinet | Speaker | Phono | |
|---|---|---|---|---|---|
| | | | | Mfg. No. | S-C No. |
| TS-125-DL1 | 112060 | 108130 | 155075 | | |
| TS-125-EL1 | 112059 | 108130 | 155075 | | |
| TS-125-SL1 | 112058 | 108130 | 155075 | | |
| TS-125-DM5M | 112075 | 108139 | 155075 | RCA-RP-168A | 148043 |
| | | | | VM-405-Duo | 148040 |
| TS-125-EM5M | 112076 | 108139 | 155075 | RCA-RP-168A | 148043 |
| | | | | VM-405-Duo | 148040 |
| TS-125-SM5M | 112077 | 108139 | 155075 | RCA-RP-168A | 148043 |
| | | | | VM-405-Duo | 148040 |
| TS-125-EH1M | 112074 | 108133 | 155085 | | |
| TS-125-DH1M | 112073 | 108133 | 155085 | | |
| TS-125-SH1M | 112072 | 108133 | 155085 | | |
| TS-15-L1A | 112049 | 108124 | 155075 | | |
| TS-15-L1M | 112049 | 108123 | 155075 | | |
| TS-15-M1A | 112049 | 108122 | 155074 | VM-402-Duo | 148025 |
| TS-15-M1M | 112049 | 108121 | 155074 | VM-402-Duo | 148025 |
| TS-16-L1A | 112047 | 108124 | 155075 | | |
| TS-16-L1M | 112047 | 108123 | 155075 | | |
| TS-16-M1A | 112047 | 108122 | 155074 | VM-405-Duo | 148040 |
| TS-16-M1M | 112047 | 108121 | 155074 | VM-405-Duo | 148040 |
| TS-16-PM | 112081 | 155075 | 155075 | RCA-RP-168A | 148043 |
| | | | | VM-405-Duo | 148040 |

FIGURE 1

## GENERAL INFORMATION

The Trav-Ler Model "A" is designed to play and automatically change a series of records up to twelve 10-inch or ten 12-inch records, not intermixed. The last record will continue to repeat until the changer is turned off.

This changer is designed to operate from a power source of 110 to 125 volts AC current at 60 cycles only.

Always predetermine the type of power in your location by consulting the local power company for this information.

Never plug this unit into a 220 volt or a DC power source, as you will seriously damage the motor.

Never try to operate this phonograph on 50 cycle current, as this will cause the motor to operate at an incorrect speed. The normal speed is 78 R.P.M. (revolutions per minute), and to insure proper reproduction of recordings, 60 cycle current must be used.

**TRAV-LER RADIO CORPORATION**
571 W. Jackson Blvd. • Chicago 6, Ill., U. S. A.

*This material compiled and published by*
HOWARD W. SAMS & CO., INC., INDIANAPOLIS 1, INDIANA
COPYRIGHT 1949 • ALL RIGHTS RESERVED



TRAV-LER
MODEL "A"

TRAV-LER
MODEL "A"

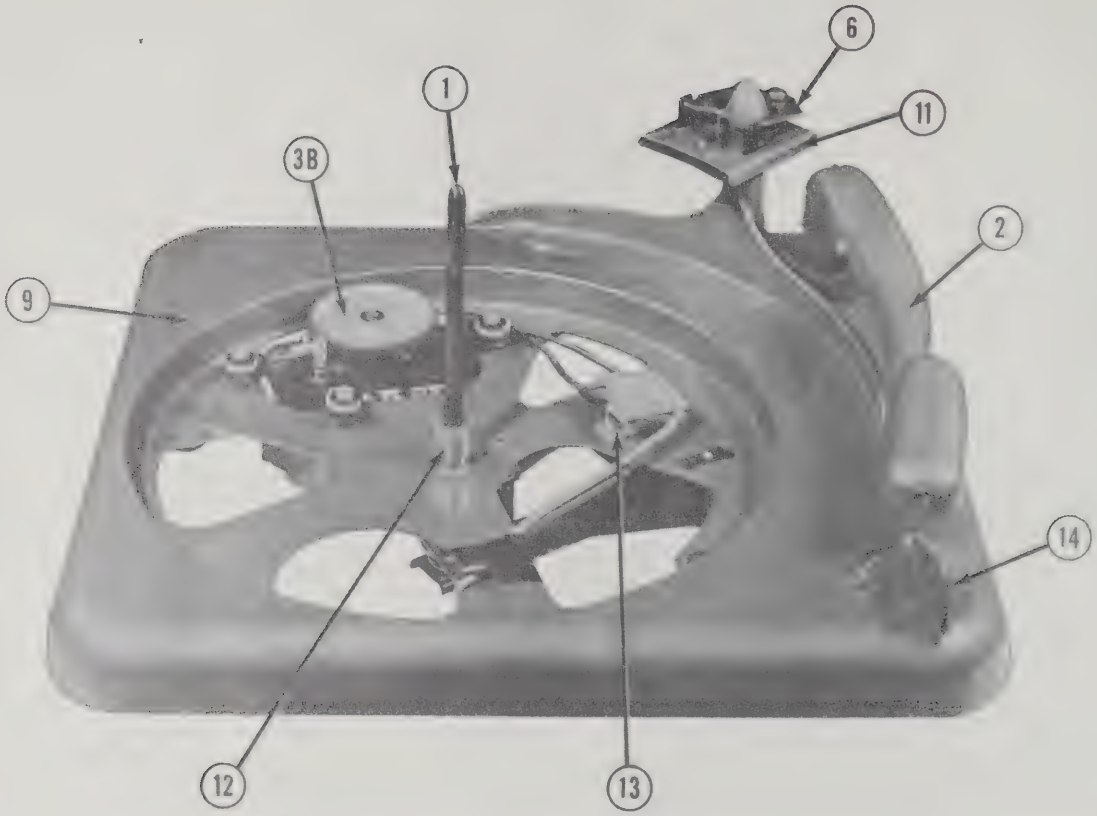



FIGURE 2

## OPERATING INSTRUCTIONS

The changer unit is equipped with a control switch and is located in the right hand corner at the front of the changer. This switch has three positions. The right hand position is "OFF." The center position is "ON" and is used to turn on the power for the changer and to prepare for automatic changer operation. The left hand position is the "REJECT" position and is used to put the changer in operation as well as to reject a record while playing if you do not care to listen to that selection. To use the "REJECT" position, rotate the knob to the left and hold in position momentarily. Release the knob and it will automatically return to the center position.

CAUTION: To prepare the changer for operation, turn the control switch to center or "ON" position. This is to determine if the mechanism is in change cycle. After the turntable starts to rotate for a few seconds, the tone arm will start to move. Allow the tone arm to complete its cycle and to set down by itself. Place the tone arm on the arm rest and rotate the switch knob to the right to "OFF" position. The changer is now ready for record loading.

### *Loading the Changer*

This changer is designed to play either twelve 10-inch records or ten 12-inch records. Never mix 10- and 12-inch records for automatic operation.

If 10-inch records are to be played, make sure that the record support shelf is in the 10-inch position. That is when the long side of the support is pointing toward the record spindle in the center of the turntable. Flip the hold-down plate to the rear while loading records. Place a few records on spindle at a time making sure that they set on the flat shoulder of the spindle and also on the record support shelf. It is well to load only a few records at a time until you become accustomed to the operation. Flip the hold-down plate over, so that it sets down on the stack of records. This prevents the records from tilting.

If 12-inch records are to be played, make sure that the record support shelf is set in 12-inch position. That is when the short side of the support is pointing toward the record spindle in the center of the turntable. The record support may be adjusted by turning it always in a left hand or counterclockwise rotation, for either 10-inch or 12-inch operation. Never turn the support to the right. In either case, turn the support until it clicks into position.

### *Safety Feature*

This changer is equipped with a feature that prevents damage to the mechanism if the tone arm should be accidentally stopped while in cycle. This is accomplished by a ball detent in the tone arm mounting pedestal. This may be observed by raising the tone arm to a vertical position. The detent is the small metal tab that hangs down in front of the mounting pedestal. If for any reason the detent has been moved, it will be necessary to readjust it to normal. This may be accomplished by holding the tone arm in a vertical position with one hand and at the same time grasping the mounting pedestal with the other hand. Slowly rotate the tone arm until the detent snaps into place. The tone arm will not properly land in the record groove when playing unless the detent is in its normal position.

### *Starting the Changer*

After the proper records have been loaded into position, rotate the control switch knob slowly to the center or "ON" position. The turntable will start to rotate. Turn the switch knob to "REJECT" position and hold it there for a moment. The tone arm will raise and the first record will drop. Then the tone arm will move over and drop into the first groove of the record.

A record may be rejected any time after it has started to play by turning the switch knob to "REJECT" position, then releasing it so that it returns to center position. If the switch is held in "REJECT" position, the mechanism will continue to operate in its change cycle until the knob returns to center position.

This changer will continue to play the last record of a stack until the mechanism is shut off.

### *To Unload Changer*

Allow the tone arm to complete its cycle after the last record has been played. Turn the switch knob to "OFF"

FIGURE 3

position. After the turntable has ceased to rotate, flip the hold-down plate to the rear. Place the tone arm on the tone arm rest. Grasp the stack of records with your fingers from underneath. Raise the stack of records straight up the spindle and pull the stack gently away from the record support shelf. Always remove the records carefully so as not to injure the record center holes or bend the center spindle.

## CHANGE CYCLE

During the change cycle, the tone arm is raised from the record and moved toward its rest; the next record is ejected, and the tone arm is lowered in the starting groove of the record.

The revolving sheave (drum) (38) is driven by the drive belt (32) from the pulley bearing (18), which revolves with the turntable.

At the start of the change cycle, the trigger assembly (25) releases the cam assembly dog (31-B) so that it is able to fall and engage one of the bosses of the drum (38). The drum then drives the cam assembly (31) which controls the functions of the change cycle. After a complete revolution of the cam, the drive dog, (31-B) is returned to its original position where it is caught by the trigger assembly (25) and held up away from the drum (38), so that it can no longer drive the cam until it is again tripped. Stop No. 42 controls travel of trigger No. 25 so as not to let trigger swing too far toward center of Cam No. 31. This stop should be bent if necessary, so that the trigger latches on (31-B) after each cycle of Cam No. 31.

The trip holds the drive dog with the aid of a spring (24). It is tripped so that the dog is released through one of two means: by the switch arm (21), or by the tone arm control assembly (41).

If the control knob (14) is turned to "counterclockwise," the switch arm (21) is moved by the switch shaft assembly (22) so that it turns on the switch (13) which is in the circuit. At the same time, and at any time the control knob is turned to "rej.," the switch arm (21) will strike trigger (25), causing it to pivot and drop the dog (31-B).

The tone arm control assembly (41) rotates with the tone arm base (2D). As the tone arm nears the end of the record, the lever, which has a serrated end (part No. 41), engages the trip dog on the trip assembly (25-A). The eccentric groove in the record will cause the tone arm to oscillate. The backward movement of the tone arm and the lever (part of 41) causes the trip dog to push against its pivot point, causing the trip assembly to drop the drive dog (31-B).

As the cam (31) rotates with the drum during the change cycle, the tone arm lift assembly (4) rides up an incline to a ledge on the periphery of the cam. This raises the tone arm off the record. During the remainder of the change cycle, the lift rod rides on this ledge, keeping the tone arm elevated, until the changing is complete.

The follower stud (41-B), on the tone arm control (41-A) is pulled into a groove on the cam at the beginning of the cycle. As the cam rotates, the stud follows the groove and causes the tone arm to swing out beyond the edge of the records, during the time that a record is being ejected, and returns it to a position over the outside edge of the record.

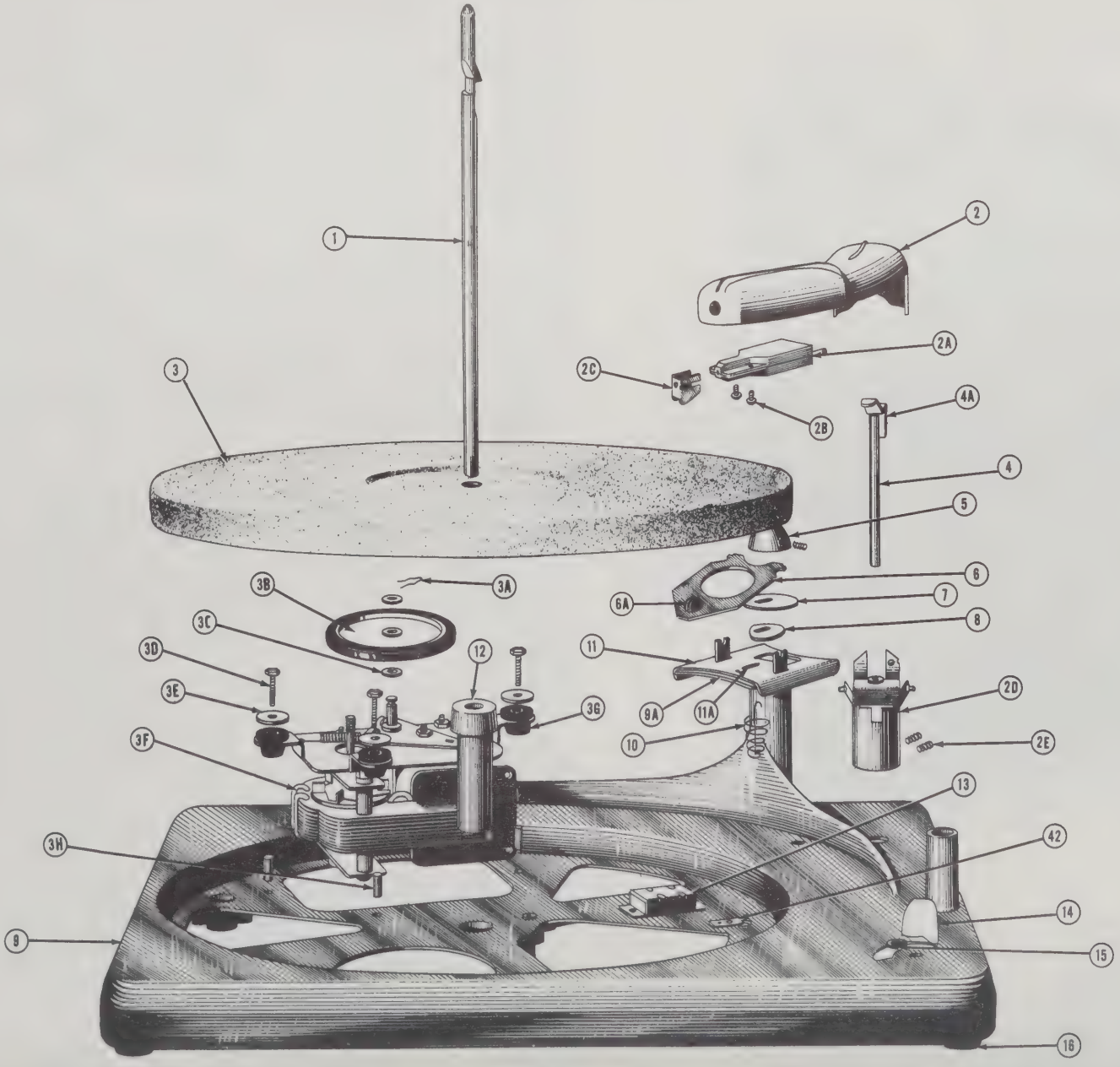
The shape of the cam (31) is elliptical at one portion of the outer edge. The roller (40-A), attached to the ejector shaft (40), follows the outside edge of the cam, with tension applied by spring (30). As the cam revolves, the elliptical portion pushes against the roller, thereby causing the lever (40) to turn. The shaft extends up to the ejector plate (11). The eccentric (8) is turned by the shaft and moves the ejector plate (11) so that it pushes a record off the shelf. As the main cam continues to revolve, the roller (40-A) rides around the cam, thus returning the ejector plate (11) to its original position.

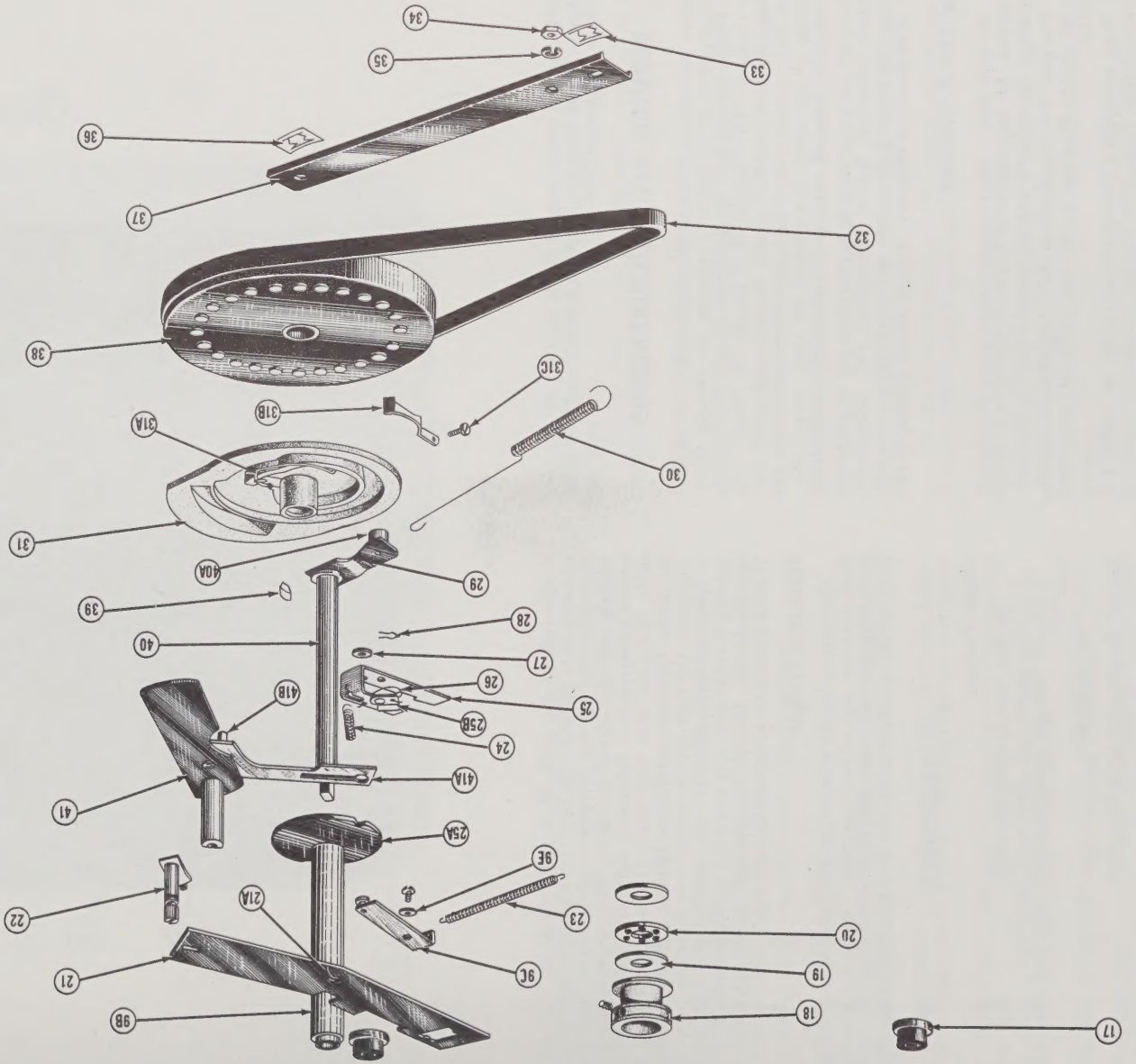
The index shaft (9-B) can be rotated by the record shelf (9-A) which controls the difference in the movement of the tone arm positioning lever (41-A) (part of 41) between the 12-inch and 10-inch record positions. The cam (9-E) is eccentric and has two notches. According to the position of the record shelf, one of these notches is engaged by the locator arm (9-C) through the slot in the positioning lever (41-A) and the aid of the spring (23).

At the completion of the change cycle, the lift rod rides down the incline of the cam, lowering the tone arm to the record. The cam follower stud (41-B) moves out of the

A PHOTOFACT "EXPLODED" VIEW

© Howard W. Sams & Co., Inc. 1949




34
35
33
36
37
32
38
31C
31B
31A
30
31
40A
29
39
28
40
27
41B
26
25
25B
24
41A
41
25A
9E
22
21A
23
20
21
9C
19
9B
18
17

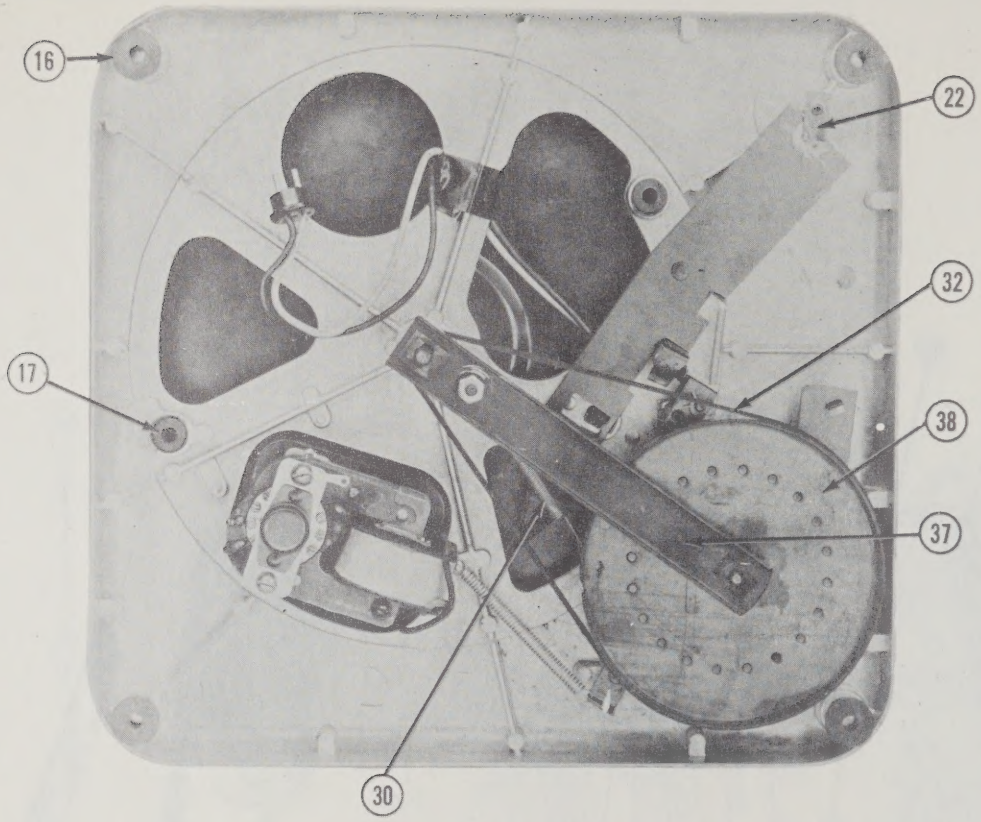



FIGURE 4

groove into the open area of the cam, thus giving free movement to the tone arm to track across the record. This completes the change cycle.

## SERVICE AND ADJUSTMENTS

Before attempting to make any adjustments or replacements of parts on a changer, examine the records being used. Faulty records are frequently the source of trouble in these changers. The changer will handle all 10-inch and 12-inch standard 78 RPM records in reasonably good condition, but it cannot function properly with records that are too large or too small in diameter, too thick or too thin, or which are chipped, especially around the center hole.

Check all parts and springs to see if they are in place and in good condition before attempting any adjustment. Springs may go dead, set screws may work loose, rivets may have loosened, or levers may be bent due to improper use.

### *Tone Arm Positioning*

If the tone arm is not properly landing on the edge of the record, the adjustment of the tone arm base (2D) on the shaft of the tone arm control assembly (41) is incorrect.

1. Position the record shelf (9A) for 10-inch records, and the detent bearing in the base (2D) for automatic operation.

2. Place a standard 10-inch record on the turntable and start the change cycle. Stop the mechanism, while still in cycle, just as the tone arm begins to descend on the record. At this point, the tone arm follower stud (41-B), will still be securely held by the groove in the cam (31), thus retaining all the working parts in their correct relationship.

3. Loosen the two set screws (2E) on the tone arm base (2D).

4. Push upward on the tone arm shaft (41) from beneath the base plate and hold it tightly against the base plate. On the top insert a .005" shim underneath the tone arm base (2D) to obtain the necessary clearance between it and its mounting.

5. Tighten the two set screws (2E) against the flat side at the end of the shaft of the control lever (41). Final adjustment to position the tone arm correctly over the first groove of the record is made by loosening one screw slightly and tightening the other. With both adjustment screws loosened, then tightening the screw nearest the turntable, the tone arm will move in the direction of the turntable. Tightening the screw farthest from the turntable will cause the tone arm to move away from the turntable.

After the adjustment is completed, check with several records to make sure it is correct; also check with a 12-inch record. If the 10-inch setting was made correctly, the 12-inch should be automatically correct.

### *Tone Arm Height*

The correct height of the tone arm is when the needle is flush with the top of the turntable. This is accomplished by raising the tone arm and slightly bending the lift bar (4A) in the direction necessary to correct the adjustment.

## TROUBLES

### *Motor Failure*

1. Broken wire or defective plug.
2. Faulty switch (13). Replace if necessary.
3. Faulty linkage between switch (13) and the switch arm (21).
4. Motor coils open.

### *Motor Overheats or Is Sluggish*

1. Poor lubrication.
2. Incorrect line voltage; should be 110-125—60 cycles only.
3. Defective wiring.
4. Mechanical binding.

### *Rumble and "Wow" in Reproduction*

1. Check rubber idler wheel tire. The tire (3-B) may become slick. If so, with turntable removed and power on the motor, rough surface by holding a very fine strip of sandpaper against the tire with motor idler shaft driving the idler wheel.

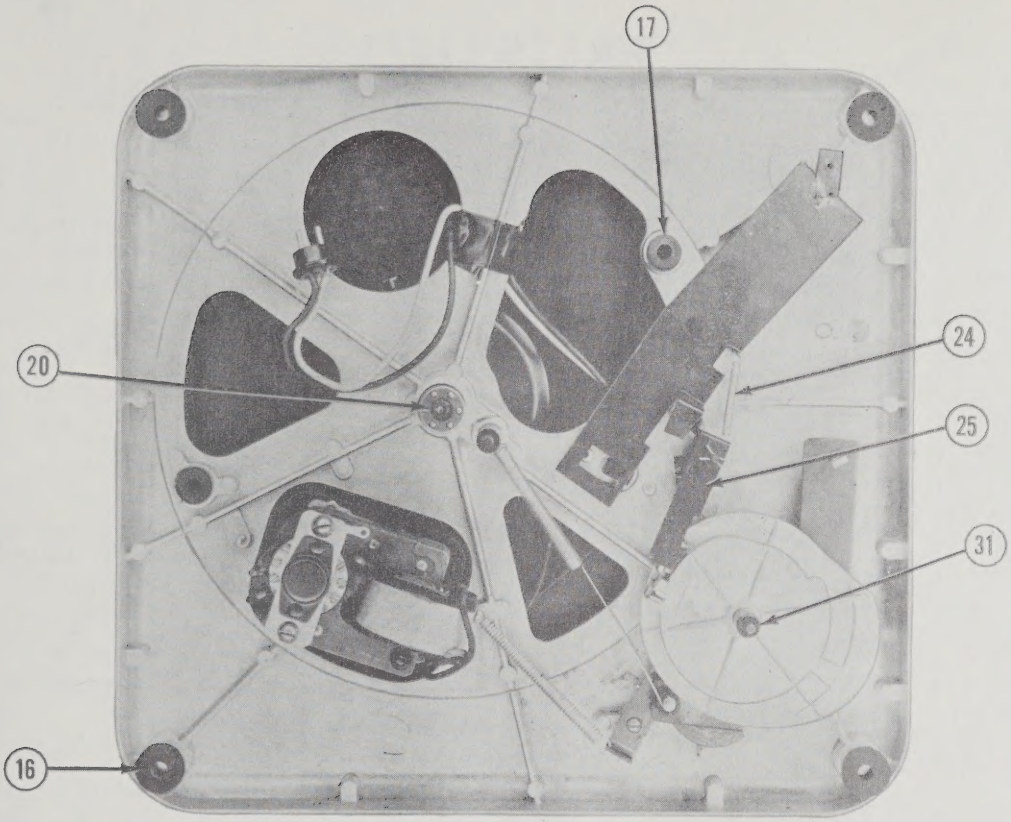



FIGURE 5

2. Changer and motor not floated properly.

3. Turntable binding on spindle (1). Remove the turntable and clean bearing surface with carbon tetrachloride. Oil sparingly if necessary.

### *Changer Cycles Continuously*

1. Spring (24) loose . . . not pivoting trigger around to catch drive dog (31-B).

2. Drive dog (31-B) binding, therefore remaining engaged with the boss on the drum (38).

3. Switch shaft (22) binding in "Rej." position.

### *Changer Fails to Cycle Properly*

1. Bearing not engaged in detent position in the tone arm post (2D) as described in the paragraph "Safety Feature."

2. Parts gummed or dry bearings may cause the faulty cycling. Clean parts with carbon tetrachloride and lubricate.

3. Drive dog (31-B) binding, therefore not engaging the drum (38).

4. Lead to pickup arm does not have enough slack to allow tone arm to reach eccentric groove.

### *Tone Arm Binds During Playing of Record*

Positioning lever (41-A) bent, thus binding on the detent cam (9-E). In order to straighten the position lever, the following procedure is necessary:

Turn changer on side and insert a thin screwdriver or similar object between parts 9-E and 41-A then pry apart gently for clearance. The tone arm may now be positioned for set down as described in "Adjustments on Tone Arm Positioning."

### *Changer Stalls or Is Jerky During Change Cycle*

1. Drive belt (32) loose. Replace if necessary.

2. Drive belt slipping. Check for oil or foreign matter on belt (32), drum (41), and drive bushing (18). If oil or foreign matter is present on these parts, clean with carbon tetrachloride.

3. Oil on idler wheel and turntable rim. Clean with carbon tetrachloride.

### *Improper Landing of Tone Arm*

1. Improper adjustment of tone arm. See "ADJUSTMENT ON TONE ARM POSITIONING."

2. Detent in tone arm base (2-D) not being engaged by the steel ball in assembly (2-D).

### *Tone Arm Does Not Clear Last Record When Cycling or Does Not Lower on First*

1. Tone arm lift bar (4-A) bent. See "ADJUSTMENTS ON TONE ARM HEIGHT."

2. Check to see if the cam (31) and drum (38) are secured in their proper positions.

### *Records Do Not Drop Correctly*

1. Spindle No. 1 free to wobble. Check the bar (37) to see if it is secured in proper position.

2. Spring (23) loose, thereby not holding cam (9-E) in position.

3. Eccentric (8) loose on the end of the shaft (40).

4. Eccentric (8) has been reassembled backward.

## LUBRICATION

Lubrication applied at the time of manufacture is usually sufficient for several years; however, if the changer is subjected to severe operating conditions, it is well to clean and relubricate all moving parts. The main cam (31) should be heavily lubricated with Lubriplate 105. Use a fine light oil on all other bearing surfaces. Do not allow oil or grease to come in contact with the rubber parts. *Do not overlubricate.*

# PARTS LIST

| Ref. No. | Part No. | DESCRIPTION |
|---|---|---|
| 1 | AC-X-10 | Record spindle assembly—consists of: record spindle, spindle cam, spindle cam spring and pin |
| 2 | AC-PU-7 | Pickup arm assembly includes Nos. 2, 2-A, 2-B, 2-C, 2-D, and 2-E |
| 3 | AC-M-7 | Changer motor assembly and 9" turntable includes, Nos. 3, 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H |
| 4 | AC-X-4 | Tone arm lift assembly |
| 5 | AC-ZC-3 | Ejector knob |
| 6 | AC-MS-64 | Record pressure plate |
| 6A | AC-RG-10 | Rubber bumper |
| 7 | AC-MS-61 | Washer |
| 8 | AC-MS-54 | Cam |
| 9 | AC-X-13 | Record base—consists of: Nos. 9, 9-A, 9-B, 9-C, 9-D, and 9-E |
| 10 | AC-DT-8 | Taper coil spring |
| 11 | AC-MS-50 | Record slide—consists of Nos. 11 and 11-A |
| 12 | AC-SM-7 | Turntable shaft |
| 13 | AC-SW-9 | One pole "off-on" switch |
| 14 | AC-ZC-4 | Switch knob |
| 15 | AC-LW-10 | "C" washer (part of AC-X5 switch shaft assembly) |
| 16 | AC-RG-12 | Rubber feet |
| 17 | AC-RG-13 | Rubber bushing (base hold down bushings) |
| 18 | AC-SM-21 | Drive bushing, aluminum |
| 19 | AC-FW-14 | Spindle bearing washers |
| 20 | AC-RB-1 | Roller bearing |
| 21 | AC-MS-49 | Switch arm, consists of Nos. 21 and 21-A (part AC-SM-22) |
| 22 | ACX-5 | Switch shaft assembly |
| 23 | AC-DT-7 | Eccentric detent locator spring |
| 24 | AC-DT-5 | Spring for trigger arm |
| 25 | AC-X-7 | Trigger assembly (consists of reset trigger, shoulder rivet and reset trip trigger) |
| 26 | AC-DT-10 | Trip trigger reset spring |
| 27 | AC-FW-11 | Washer |
| 28 | AC-DT-11 | Trigger post clip |
| 29 | AC-FW-10 | Washer |
| 30 | AC-DT-6 | Arm ejector spring |
| 31 | AC-X-11 | Cam assembly—consists of Nos. 31, 31-A, 31-B, and 31-C |
| 32 | AC-RG-11 | Rubber belt |
| 33 | AC-N-12 | Speed nut |
| 34 | AC-N-11 | Nut |
| 35 | AC-LW-11 | Lockwasher |
| 36 | AC-N-13 | Speed nut |
| 37 | AC-MS-65 | Bar shaft support |
| 38 | AC-X-3 | Sheave assembly |
| 39 | AC-MS-63 | Shim |
| 40 | AC-X-9 | Record ejector shaft assembly |
| 41 | AC-X-8 | Tone arm control assembly—consists of Nos. 41 and 41-A |
| 42 | AC-MS-62 | Stop for trigger reset |

PRINTED IN U.S.A.